

COMMITTEE ROOM



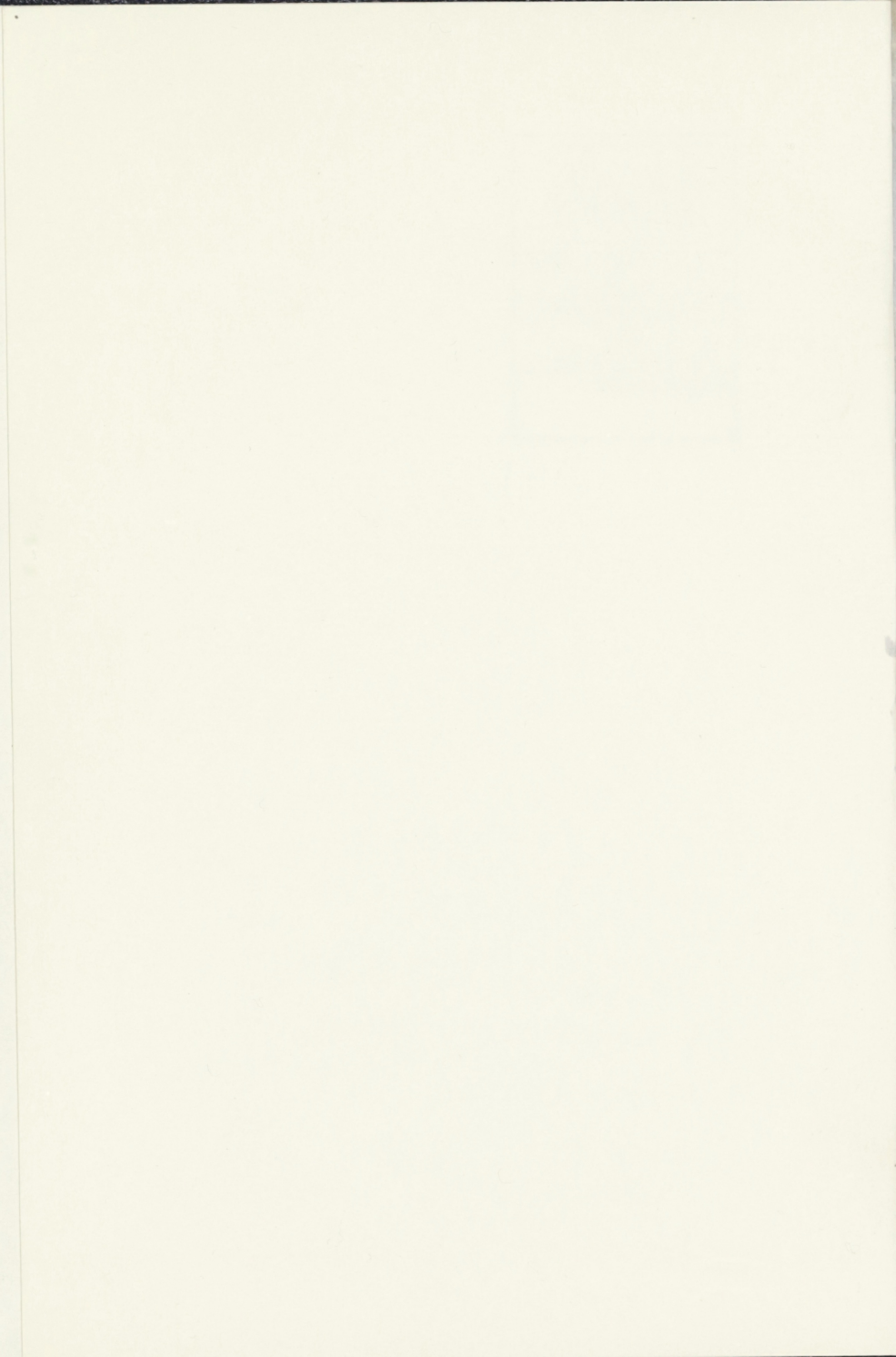
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LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

NOTICE.

The Rules, Sections 31, 37, 39, 45, 46, 50, 54, 56, 60, 62, 77, 79, 80, 81, and 82, having been amended or altered, since the last edition of the Work, attention is particularly directed thereto; and to the amended Tables A. F. and G.

It will be likewise observed that the relaxations in favour of steam ships heretofore allowed by the Rules, Section 79, 80, and 81, as regards materials and scantlings, have been discontinued; and steam ships hereafter built will be subject to the same requirements in these respects as sailing vessels.

2, *White Lion Court, Cornhill, E.C.*,
1st July, 1858.

LOYD'S REGISTER

SHIPPING AND COMMERCE

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LLOYD'S REGISTER
OF
BRITISH AND FOREIGN
SHIPPING.

From 1st JULY, 1858, to the 30th JUNE, 1859.

ESTABLISHED 1834.



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1858.

BRITISH AND FOREIGN

Printed and Published by
J. W. & J. R. Smith, 10, Abchurch Lane, London, E.C. 4.

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The following is a list of the names of the persons who have been elected to the office of Member of the Council of the British and Foreign Association for the Advancement of Science and Art, for the year 1900-1901.

The names are as follows:

Mr. J. W. & J. R. Smith, 10, Abchurch Lane, London, E.C. 4.

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1858—1859.

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Solicitor.

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Secretary.

GEORGE B. SEYFANG, Esq.

No. 2, White Lion Court, Cornhill,
London, 1st July, 1858.

LIVERPOOL BRANCH.

1858-59.

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MR. WILLIAM PERKINS.

MR. SENHOUSE MARTINDALE.

Mr. J. WIMSHURST, } *Assistant Surveyors.*
Mr. T. ADAMSON, }

Office, 14, Tower Chambers.

SURVEYORS.

The Surveyors at the following Ports are exclusively the Officers of the Society, and are not permitted to engage in any other business or employment whatsoever.

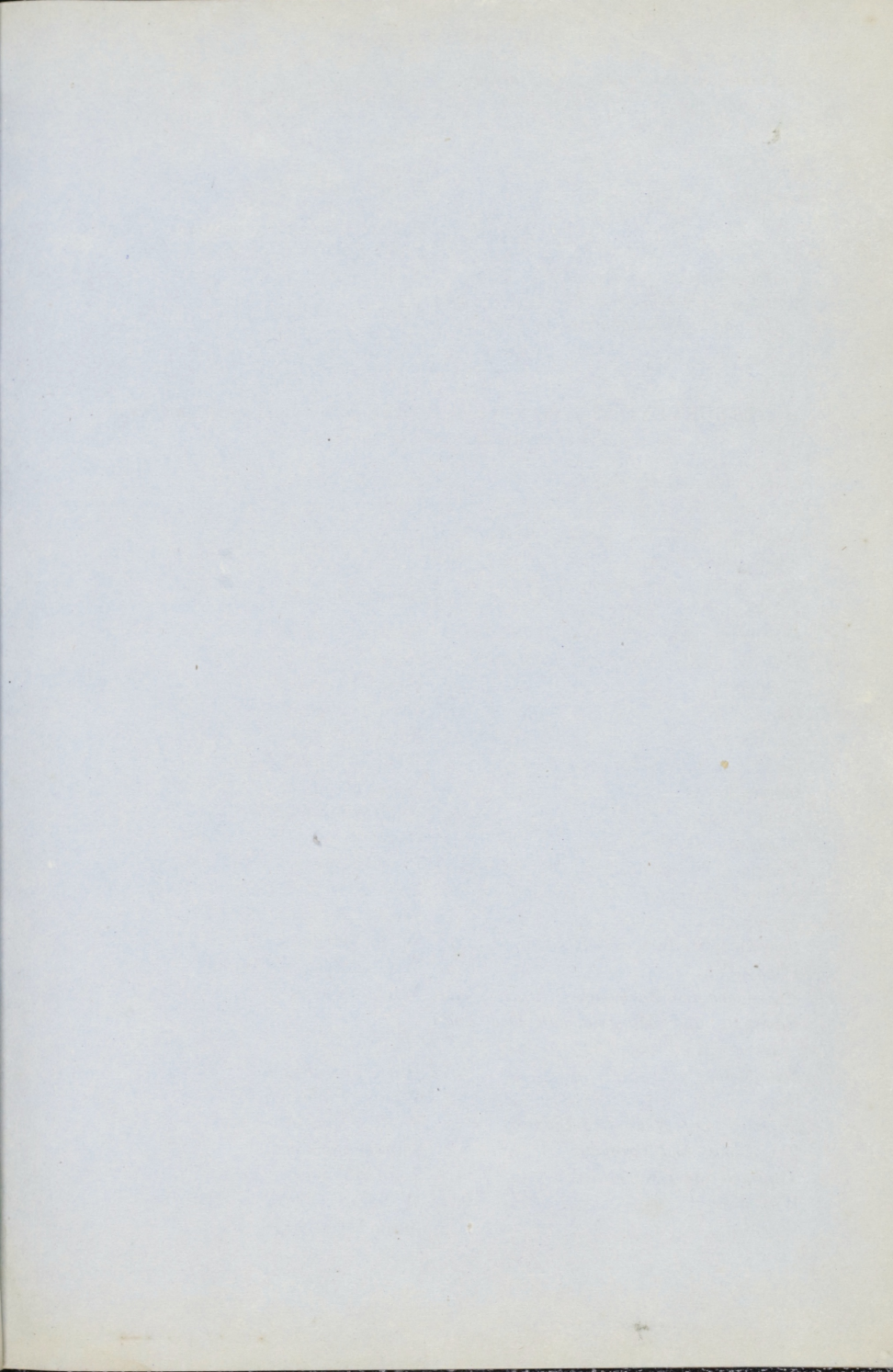
LONDON	James Martin. Joseph Horatio Ritchie. Thomas W. Wawn. Bernard Waymouth. W. C. Davey. John F. Light. W. T. Mumford. <i>Assist. Surveyor.</i>
Aberdeen, with Banff, Peterhead, and Fraserburg	William Wallis.
Bangor, with Carnarvon and Holyhead ...	John Johns, jun.
Bideford, Barnstaple, and Appledore ..	Benjamin Rogers Pyke.
Belfast, with Dublin	Alexander Linton.
Bristol, with Chepstow, and the River Wye	James Wood.
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Dundee, with Arbroath, Montrose, and Perth	Thomas Alexander.
Greenock	John Barr Cumming. Thomas Congdon.
Glasgow	Richard Robertson. Thomas Luke.
Hartlepool, Stockton, and Middlesbro' with Whitby and Scarborough (residing at West Hartlepool)	S. P. Gladstone. William Davidson, <i>Assistant Surveyor.</i>
Holland and Belgium (residing at Rotterdam)	Samuel Pretious.
Hull, Gainsborough, Goole, Selby, Thorn, and Grimsby	Henry Adams.
Leith, and Ports in the Frith of Forth, with Berwick-upon-Tweed	Walter Paton.
Liverpool, Chester, and River Dee ...	William Pope. George Winram. William Perkins. Senhouse Martindale. J. Wimshurst. Thomas Adamson. } <i>Assistant Surveyors.</i>
Miramichi and Northern District of New Brunswick, with Ports in the Gulf of Shore of Nova Scotia	Samuel Laphorn.
Newcastle, with North and South Shields (office North Shields)	Matthew Poppelwell. Henry John Boulds John Maxwell.
Prince Edward Island (residing at Charlotte Town)	Charles R. Coker.
Quebec and the River St. Lawrence ...	Thomas Menzies. Richard Sloggett, <i>Assistant Surveyor.</i>
St. John, New Brunswick	John Tucker. William Crowhurst, <i>Assistant Surveyor.</i>

SURVEYORS—(continued).

<i>Southampton and South Coast, including the Isle of Wight, Weymouth, and Bridport</i>	} Edward W. Jobling.
	{ Thomas Boyes Simey.
	{ Thomas Lawrence.
<i>Sunderland</i>	{ E. R. Couchman.
	{ Alfred Darling.
	{ Benjamin Martell. } <i>Assistant</i>
	{ F. W. Bonniwell. } <i>Surveyors.</i>
<i>Western District (residing at Plymouth)...</i>	W. R. Mulley.
<i>Whitehaven, Workington, Harrington, and Maryport, with Dumfries and Annan</i> }	John H. Tiltman.

The SURVEYORS at the following PORTS do not hold appointments as
the exclusive Servants of the Society:

<i>Aberystwith and Aberdovey</i>	William Julian.
<i>Blyth, with Hartley</i>	Richard Lough.
<i>Cardigan, with New Quay, Aberayron, and Llandewey...</i>	} David James.
<i>Cork, with Queenstown, Kinsale, and Limerick</i>	} George Wright.
<i>Dartmouth, with Salcombe and Brixham</i>	William Newman.
<i>Falmouth, with Fowey and Padstow</i> ...	James Husband.
<i>Galway</i>	Henry Townsend.
<i>Gloucester</i>	J. G. Francillon.
<i>Guernsey</i>	Peter Collas.
<i>Ipswich and Harwich</i>	William Taylor, Jun.
<i>Londonderry</i>	James McGhee.
<i>Lynn</i>	William Garland.
<i>Milford, with Pembroke...</i>	David Vaughan.
<i>Newport, Monmouthshire, with Cardiff...</i>	Henry Haynes.
<i>Newry, Carlingsford, and Dundalk</i> ...	Leonard Watson.
<i>Orkneys</i>	James Cromarty.
<i>Penzance, St. Ives, and Helston</i> ...	W. D. Mathews.
<i>Plymouth</i>	William Bennett Cuming.
<i>Portmadoc and Barmouth</i>	William Jones.
<i>Ramsgate and Margate, with Deal and Dover</i>	} John Cuttler.
<i>Scilly Isles</i>	Hugh Tregarthen.
<i>Sligo</i>	William Pollexfen.
<i>Swansea, with Neath and Llanelly</i> ...	W. N. Johnson.
<i>Teignmouth and Torquay</i>	Samuel Cockings.
<i>Topsham and Exeter</i>	John Holman.
<i>Waterford</i>	William D. Price.
<i>Weaford</i>	Mark Devereux.



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LLOYD'S REGISTER

OF

BRITISH AND FOREIGN SHIPPING.

RULES AND REGULATIONS.

1. THE operations of the Societies of the two Register Books of Shipping formerly printed for the use of Merchants, Ship-Owners, and Underwriters, having ceased in the year 1834, this Society was then established for the purpose of obtaining a faithful and accurate Classification of the Mercantile Shipping of the United Kingdom, and of the Foreign Vessels trading thereto, and for the government of which the following Rules and Regulations have been from time to time adopted.

2. A Register Book to be printed annually for the use of Subscribers.

3. Each person subscribing the sum of Three Guineas per annum (or such other sum as the General Committee may fix), to be considered a Member of the Society, and entitled *for his own use* to one copy of the Register Book.

4. The subscription of Public Companies, or Public Establishments (not being engaged in Marine Insurance), to be Ten Guineas per Annum.

5. The subscription of Marine Insurance Companies to be regulated by the Committee on special application, in each case, but not to be less than Ten Guineas per Annum.

6. The Register Book to be periodically posted throughout the year.

7. For the convenience of Subscribers not resident in London, a Supplement, containing the additions to, and corrections made in, the Register Book, to be printed fortnightly in such convenient form, as to admit of its transmission by Post, so that such parties may be furnished, from time to time, with the latest and most complete information.

8. The superintendence of the affairs of the Society to be under the direction of a Committee in London, of twenty-four members, consisting

of an equal proportion of Merchants, Ship-Owners, and Underwriters. The Chairman for managing the affairs of Lloyd's, and the Chairman of the General Ship-Owners' Society, and also the Chairman and Deputy Chairman of the Liverpool Committee, and the Chairman of the Rotation Committees for the time being, to be, *ex officio*, Members of the Committee.

9. Six of the Members, namely, two of each of the constituent parts of the Committee, to go out annually by rotation, but to be eligible to be re-elected.

10. The vacancies so arising to be filled up by the election of two Underwriters and one Merchant by the Committee for managing the affairs of Lloyd's, and two Ship-Owners and one Merchant by the Committee of the General Ship-Owners' Society.

11. The Committee to appoint from their own body, annually, a Chairman and Deputy Chairman, and also a Chairman for a Sub-Committee of Classification.

12. The Committee to appoint a Sub-Committee of Classification, to be so regulated that each Member of the General Committee may, in rotation, take his turn of duty therein throughout the year.

13. The Secretary, Clerks, and Servants of the Society, and the Surveyors, to be appointed by, and be under the direction of the General Committee.

14. Special meetings to be convened by order of the Chairman, or Deputy Chairman, or on the requisition of any three members.

15. All elections and appointments to be made by ballot.

16. No Member of the Committee to be permitted to be present on the decision of the classification of any ship of which he is the owner, or wherein he is directly or indirectly interested.

17. The Committee to be empowered to make such By-laws for their own government and proceedings as they may deem requisite, not being inconsistent with the original Rules and Regulations under which the Society was established; but no new Rule or By-law to be introduced, nor any Rule or By-law altered, without special notice being given for that purpose at the meeting of the Committee next preceding that at which such Motion is intended to be made; such notice to be inserted in the summons convening the meeting. No new Rule, or alteration in any existing Rule, materially affecting the classification of ships, to take effect until the expiration of six months from the time it shall have been determined upon.

18. All Reports of survey to be made in writing by the Surveyors according to the forms prescribed, and submitted for the consideration of the General Committee, or of the Sub-Committee of Classification; but the

character assigned by the latter to be subject to confirmation by the General Committee.

19. The reports of the Surveyors, and all documents and proceedings relating to the classification of ships, to be carefully preserved, and parties proving themselves to be interested therein, to have access to the same under the direction of the Chairman or Deputy Chairman.

20. Foreign ships, and ships built in the British possessions abroad where there is not a Surveyor (*See also Section 51*), to be surveyed on their arrival at a port in the United Kingdom; but a due regard is to be had to the circumstance of their having been exempted from the supervision while building to which all British ships are subjected, and the character to be assigned to them is to be regulated according to their intrinsic quality, and from the best information the Committee can obtain.

21. In every case in which the Character assigned to a ship may be proposed, on survey, to be reduced, notice is to be given in writing to the Owner, Master, or Agent, with an intimation that if the reduction be objected to, the Committee will be ready to direct a special survey, on the Owner, Master, or Agent, agreeing to pay the expenses attending the same, provided on the said survey there shall appear sufficient ground for the proposed reduction.

22. When the Surveyors consider Repairs to be requisite, they are respectfully to communicate the same in writing to the Owner, Master, or Agent, and if such repairs be not entered upon within a reasonable time, a corresponding report is to be made to the Committee for their decision thereon.

23. Parties considering the repairs suggested by the Surveyor to be unnecessary or unreasonable, may appeal to the Committee, who will direct a special survey to be held; but should the opinion of the Surveyor be confirmed by the Committee, then the expense of such special survey is to be paid by the party appealing.

24. The Surveyors to the Society not to be permitted (without the especial sanction of the Committee), to receive any Fee, gratuity, or reward whatsoever for their own use or benefit, for any service performed by them in their capacity of Surveyors to this Society, on pain of immediate dismissal.

25. The Surveyors will be directed to attend on Special Surveys of ships under damage, or repairs for Restoration, when required by Merchants, Ship-Owners, or Underwriters; the charge for which is to be regulated according to the nature and extent of the service performed. In all cases, the application for the assistance of the Surveyors must be made in writing addressed to the Secretary.

FUNDS.

26. The Funds to be under the authority and control of the Committee, and a statement of the Receipts and Expenditure to be annually printed for the information of the subscribers.

27. The following Fees to be charged to the Owners of ships prior to their vessels being classed and registered in the book.

I.

For Entering and Classing Ships, and for Entering and Classing Ships surveyed for Continuation, or repaired for Restoration.

For each Ship ...	...	under	100 Tons	...	£1	0	0
Ditto ...	of 100 Tons and under	200	...	...	2	0	0
Ditto ...	200	—	300	...	3	0	0
Ditto ...	300	—	400	...	4	0	0
Ditto ...	400 and upwards	...	...	...	5	0	0

II.

For Registering Repairs.

For each Ship ...	...	under	300 Tons	...	£0	10	0
Ditto ...	of 300 Tons and under	500	...	...	1	0	0
Ditto ...	500	—	1000	...	2	0	0
Ditto ...	1000 and upwards	...	...	...	3	0	0

For Re-classing Ships (except when repaired) the Characters of which have been expunged, or change of Owners.

For each Ship ...	...	under	200 Tons	...	£0	10	0
Ditto		200 — and above	...	...	1	0	0

Special Surveys.

28. For Special Surveys, and where the Surveyors to the Society are required by the Owners to superintend the building of ships, or repairs for Restoration, or otherwise, a charge will be made according to the nature and extent of the service performed. In all such cases the authority of the Committee is required.

29. Certificates of Character, of the Form No. 7, signed by the Chairman of the General Committee, or by the Chairman of the Sub-Committee of Classification, and countersigned by the Secretary, will be granted on application; the charge for which will be as follows:—

For Ships under 200 Tons	...	...	...	2s. 6d. each
200 — and above	...	...	...	5s. each.

For Ships built under Special Survey, on their

First Classification Gratis.

30. Rules, each copy 2s. 6d.

CHARACTERS.

31. The Characters to be assigned to ships to be, as nearly as possible, a correct indication of their real and intrinsic qualities,* and to be in all cases fixed (not by the Surveyors, but) by the Committee, after due consideration of the Reports of the Surveyors and such other documents as may be submitted to them, and will be distinguished as follows:—

SHIPS A

To consist of new ships, or ships Continued, or Restored. *Vide Sections 34, 54, 55, 57.*

SHIPS A, in Red,

To consist of ships which have passed the period assigned on the original survey, or Continuation, or Restoration; and also of ships not having had an original character, and which are found on survey of superior description, fit for the conveyance of dry and perishable goods, *to and from all parts of the world.* *Vide Section 60.*

SHIPS Æ

To consist of ships which are found on survey fit for the safe conveyance of dry and perishable goods on *shorter voyages.* *Vide Section 61.*

SHIPS E

Will comprise ships which shall be found on Survey fit for the conveyance of cargoes not in their nature subject to sea damage *on any voyage.* *Vide Section 64.*

SHIPS I

To consist of ships fit to carry cargoes not liable to sea damage *on shorter voyages.* *Vide Section 66.*

32. In all cases in which the application of the rules must necessarily be regulated by the ship's admeasurement, the *gross register tonnage* is to be adopted.

RULES FOR CLASSIFICATION.

SHIPS A

33. Will consist of new ships and those which have not passed a prescribed age, provided they are kept in a state of complete repair and efficiency. The character A will not, however, be granted to any vessel,

* Ships which are not built in accordance with the principles of the Society's Rules will be marked in the Register Book thus, "*Expt. (B.S.)*," denoting that they are built experimentally, and are classed subject to being surveyed biennially.

unless satisfactory evidence of the date of build and place where built is produced.

34. The number of years to be assigned for this Character to be determined with reference to the original construction and quality of the vessels, the materials employed, and the mode of building; and their continuance for the time so assigned to depend upon its being shown by occasional surveys (annually if practicable) that their efficiency is duly maintained. The characters of ships A will be struck out of the Register, unless re-surveyed within a period of four years from the *date of last survey*,—or, in the case of ships exceeding the eight years' grade, within *one-half of the time* assigned. After the expiration of the periods prescribed, ships will be permitted to Continue in the character A, or may be Restored thereto, for a further limited period, on complying with the conditions hereinafter prescribed in Sections 54, 55, and 57.

35. New ships are to be surveyed while building, by the Surveyors to this Society, in the following three stages of their progress, or they will be liable to lose one year of the period to which they might otherwise be entitled. (*See Section 53.*) Ships intended to be built under *special survey*, must be placed under the Surveyor's inspection from their commencement, so that all parts of the timbers, deadwood, keel, stem, &c., may be examined.

First.—When the Frame is completed, timbers dubbed fair inside and outside ready to receive planking, and before any planking is wrought.

Second.—When the Beams are put in, but before the Decks are laid, and with at least two strakes of the plank of the ceiling between the lower deck and the bilge unwrought, to admit of an examination of the inner surface of the plank of the bottom.

Third.—When completed, and before the plank be painted or payed.

All Ships for which a higher character than Ten Years' A may be claimed, must undergo a Survey by a Surveyor who is an exclusive Officer of the Society, twice at least, while building; namely, at the first and at the second stages of their progress as above prescribed. Due notice must be given by the Builder or Owner of their being ready for this additional survey.

36. A full statement, agreeably to Form No. 4, of the dimensions, scantlings, &c. of all new ships, verified by the builder, is to be transmitted by the Surveyor, and to be kept as a record in the office of the Society.

RULES TO BE OBSERVED IN BUILDING SHIPS.

37. The whole of the Timber to be of good quality, of the descriptions

shown in Table A as applicable to the several terms of years for which ships so constructed may respectively be appointed to remain on the character A. The stem, stern post, beams, transoms, apron, knightheads, hawse timbers, and keelson of ships claiming to stand *twelve years*, to be entirely free from all defects; the frame to be well squared and free from sap; each set of timbers to be frame-bolted together throughout their entire lengths. The butts of the timbers to be close, and not to be less in thickness than one-third of the entire moulding at that place, and to be well chocked with a butt at each end of the chock. In all cases in which the heads and heels of the timbers shall be *square*, in vessels intended for the twelve years' grade, a dowel (to be in diameter from one-fourth to one-third of the moulding of the timber) must be introduced into the ends of such timbers in order to connect them together. In the construction of top-gallant forecastles, and poops, the timbers must be of the same materials as are required by the Rules (Table A) for the top-timbers of the frames of ships according to the several terms of years appointed for such ships to remain on the character A, all the said timbers to extend to the planksheer. All the outside planking of top-gallant forecastle, and the sheerstrakes, planksheers, and spirketting of top-gallant forecastles and poops must be of the materials required by the Rules (Table A) for the topsides of the said ship; and the shelf and clamps of poops and top-gallant forecastle may be of the same quality as those allowed in Table A for the shelf and clamp of the upper deck. All the beams of top-gallant forecastle, and the mast beams, breast beams, and transom beams of poop, to be of the materials required by the Rules (Table A) for the beams of the said ships; the remainder of the beams and the water-way of the poop, and the remainder of the planking of poop and top-gallant forecastle may be of cedar, mahogany, Baltic or American red pine, pitch pine, larch, hackmatack, tamarac, or cowdie, and rock elm for such remainder of beams only, and yellow pine or American white spruce in ships below the seven years' grade.

This Rule does not apply to raised quarter decks, the materials of which are required to be of the same quality as those named in the Table for the main body of the ship.

38. The Scantlings of the timbers, keelson and keel, thickness of planking, &c. are not to be less than those shown in Table B., following page 32.

In the inside and outside planking, waterways, planksheers, and flat of deck of full poops and top-gallant forecastles, a reduction of *one-fourth* from the thickness required by the Table B for such planks in the range of the upper deck in ships with two decks, will be allowed; and in the siding

and moulding of the top timbers and beams of full poops and top-gallant forecastles, a reduction of *one-fifth* will be allowed.

In the inside and outside planking, waterways, planksheers, and flat of deck of raised quarter decks, a reduction of *one-fifth* from the thickness required by the Table B for such parts in the range of the upper deck in ships with two decks, will be allowed.

39. The intermediate dimensions for the scantling of timbers between the floor heads and the gunwale to be regulated in proportion to the distance from the two points. Should the timber and space be increased, the siding of the timbers to be increased in proportion. Whenever ships are built with double floors, thick strakes (see Table B) must be worked inside, to extend from the lower part of the short floor-head chocks to the upper part of the long floor-head chocks, and be well bolted through and clenched, *with one bolt at the head of each long and short arm of floors, and at the heel of each first and second foothook which come upon them, from the foremast extending a distance aft equal to three-fifths of the length of the ship; in such cases, the limber strakes need not be through bolted.*

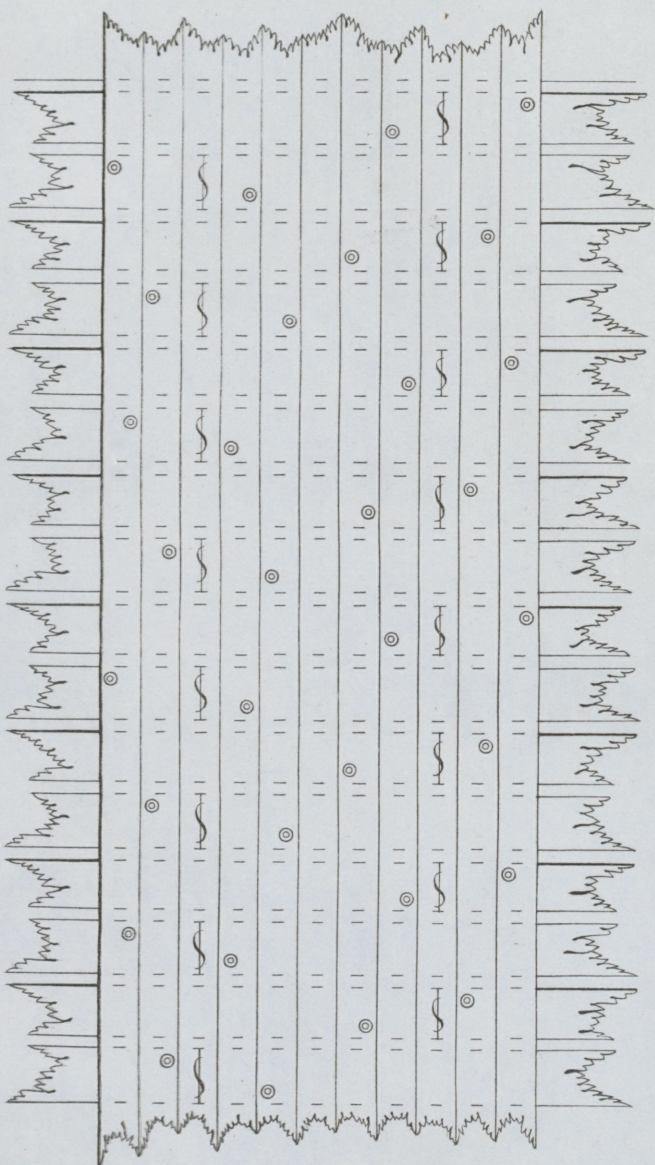
All ships, the length of which (measured from the fore part of the stem to the after part of the stern-post on the range of upper deck), shall exceed five times their extreme breadth, shall have diagonal iron plates closely inserted either outside or inside the frame.* If placed outside, the said plates to extend from the upper side of upper tier of beams to the lower part of chocks at first futtock heads amidship, and to the same perpendicular height forward and aft, measured from the lower part of the keel; and if placed inside, the plates are to extend from the upper side of upper tier of beams to the lower part of chocks at *floor heads*. Whether placed outside or inside, the sizes of the plates not to be less than as follows, viz.:—

In ships of 100 tons and under 200 tons		...	$3\frac{1}{2}$	by	$\frac{7}{16}$	in.
200	400	...	4	by	$\frac{1}{2}$	...
400	700	...	4	by	$\frac{5}{8}$	...
700	1000	...	$4\frac{1}{2}$	by	$\frac{3}{4}$	...
1000	1500	...	5	by	$\frac{3}{4}$	...
1500 and above	...	...	$5\frac{1}{2}$	by	$\frac{7}{8}$	...

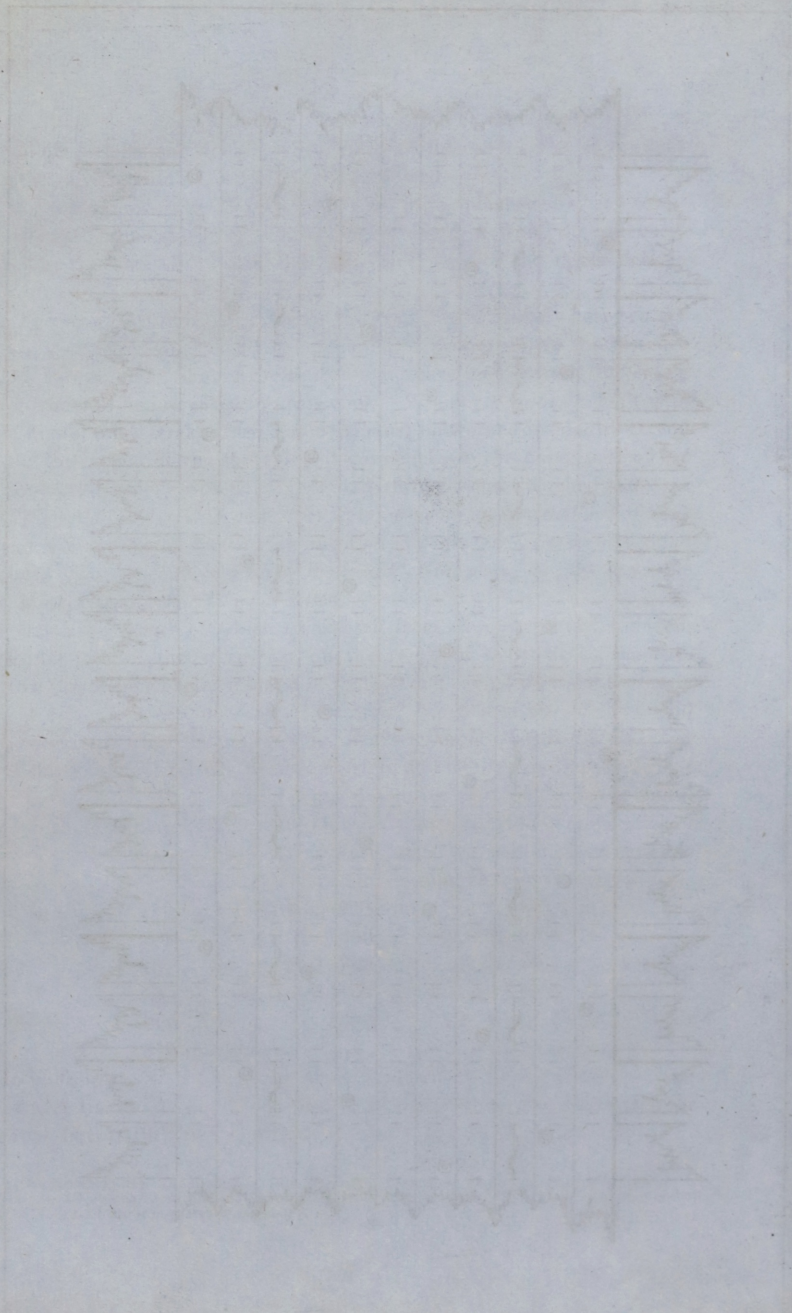
and to be fastened with bolts, one at each alternate timber if outside, and one at each timber if inside, not less in diameter than the sizes given for "through butt bolts" in Table D.

* Parties objecting to fit the iron plates on frames as prescribed above, are at liberty to submit, for the Committee's consideration and approval, such compensation as will, in their opinion, render the introduction of the iron plates unnecessary.

SKETCH SHOWING THE ARRANGEMENT OF THROUGH BOLTS IN THICK STRAKES OVER DOUBLE FLOORS. SECTION 59.

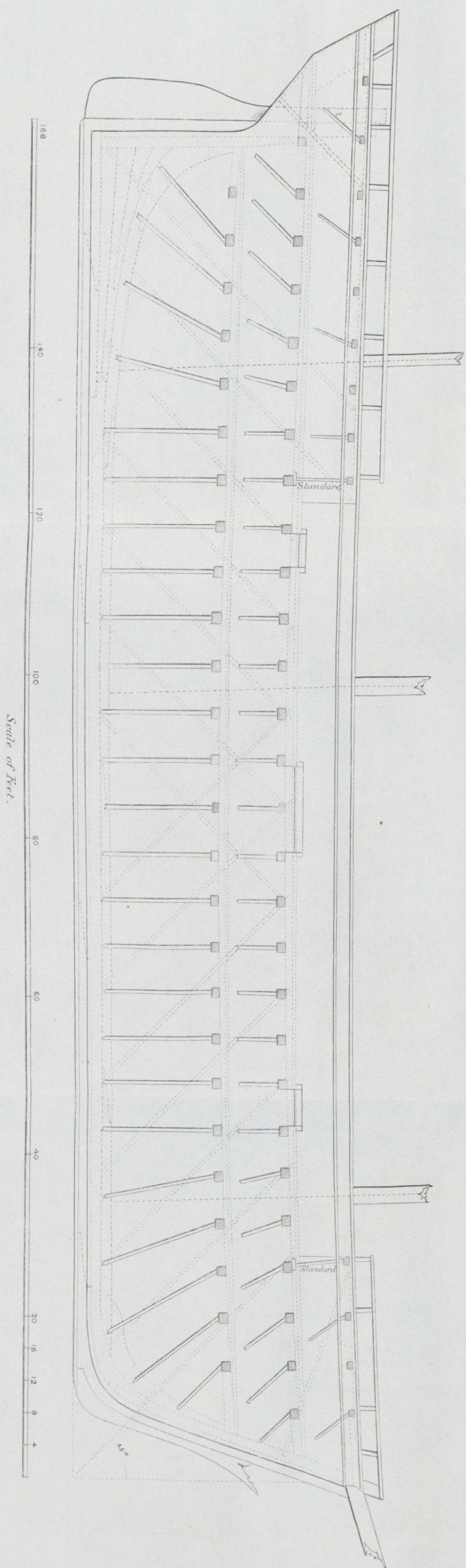


THE UNIVERSITY OF CHICAGO PRESS



LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

A plan showing the direction of the Iron Plates on Frames, and Iron Stems and Stiders, specified in the Rules, Sections 39 and 62.



The number of plates to be in proportion of not less than one pair to every twelve feet of the ship's entire length taken as above, but not to be more than eight feet asunder measured on a square; the said plates are to be placed diagonally, at an angle of not less than 45 degrees, their lower ends pointing to the after end of the keel in the after body, and to the fore end of the keel in the fore body, four pairs crossing each other amidship.

In ships the length of which shall exceed *six* times their extreme breadth, the number of plates must be not less than one pair to every *ten* feet of the ship's entire length taken as above, but not to be more than six feet asunder measured on a square, and to be placed diagonally as above described. And in addition thereto, such ships must be fitted with a rider keelson or a pair of sister keelsons, at the option of the owner, the transverse sectional area of such rider keelson or sister keelsons each to be equal to two-thirds of that required in Table B for main keelsons. If a rider keelson be adopted, it must be fastened with through bolts of the size required in Table D for keelson bolts, and in number not less than one in every alternate floor. If sister keelsons be fitted, they must be fastened with through bolts, in number not less than one in every alternate timber, and of the size required in Table D for "scarphs of keels," &c.

All such ships to have shelves and waterways to each tier of beams, each equal in contents to the transverse sectional area of the beams of their respective decks at their ends; each of the said shelves and waterways to be bolted through the outside planking at every timber, with bolts of the sizes given in Table D; likewise the shifts of inside and outside planking not to be less than 6 feet, unless there be a strake wrought between them, and then a distance of 5 feet will be allowed.

40. The sizes of the deck and hold Beams have been regulated so as to be determined by the length of the beams *amidships*, as shewn in Table C., following page 32. The beams will be required to be of the size of the midship beam, except those at the *after end* of the ship, which may be reduced in proportion to their length. If beams of spruce or yellow pine are used, the siding of such beams shall be one-fourth larger than is prescribed by the above Table, or be increased each way, siding and moulding, equal in area to that amount.

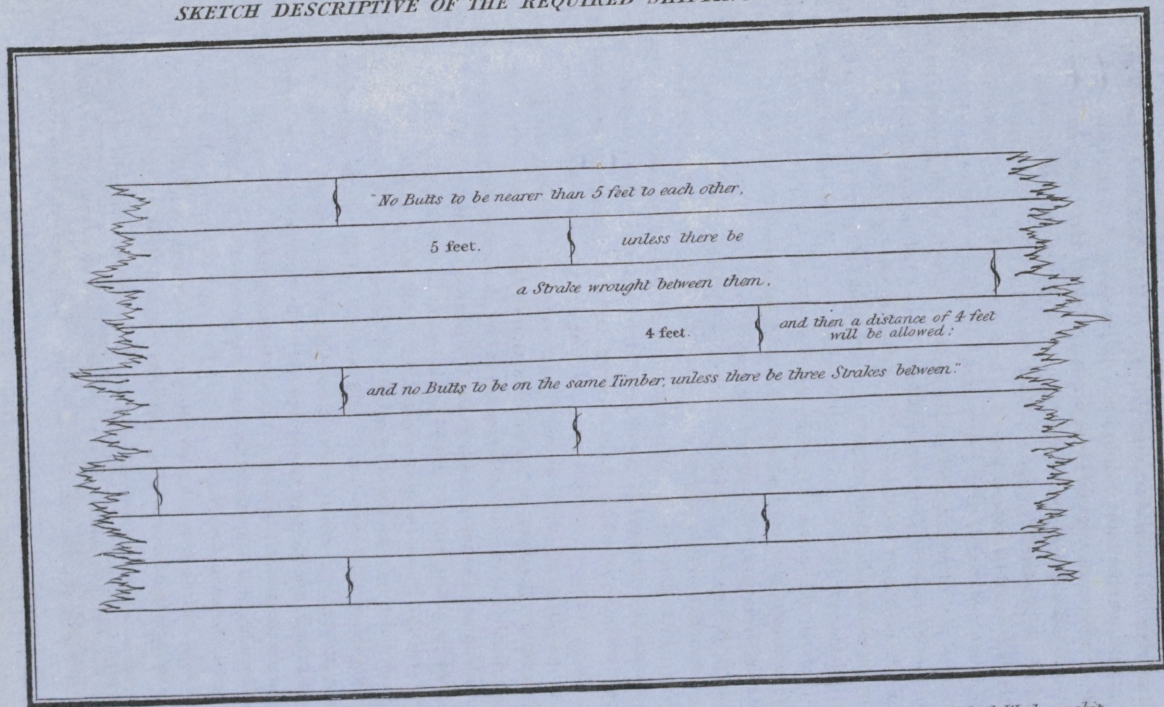
41. The Beams of all Decks to be sufficient in number and size, and securely fastened to the sides either with lodging knees of iron or wood, or with a shelf piece and waterway,* or with a shelf-piece and knees, or with some other

* When the transverse sectional area of the shelf-pieces and waterways are each equal in contents to the transverse sectional area of the beams of their respective decks at their ends, as given in

security equal thereto, so as sufficiently to connect the ends of the beams to the sides of the ship : and, in addition, all ships of 150 tons and above to have vertical knees to the Deck beams ; and those of 200 tons and above to have vertical knees to the Hold beams, in number as shewn in Table E., following page 32. Vessels of 13 feet, and under 15 feet hold, the spacing of the hold beams not to exceed 8 feet apart, and the deck beams 4 feet :—Vessels of 15 feet and under 18 feet hold, the spacing not to exceed 8 feet and 4 feet apart alternately, or in that proportion ; the deck beams to be placed one over every hold beam, and one in all double spaces :—Vessels of 18 feet hold and above, the spacing of the beams not to exceed 4 feet 6 inches ; the deck beams to be one over every hold beam. The depth in all such cases to be determined by taking the measure from the top of the limber-strake (the thickness of which, for measurement to be taken as prescribed in Table B), to the top of the upper deck beams. Ships having a depth of hold, measured from the limber-strake to the under side of the lower deck beam, *above* 13 feet but not exceeding 15 feet, must be secured with iron riders of the sizes and be fastened as shewn in Table F., and in number not less than one on every fourth floor, on each side, from fore side of fore-mast to aft side of mizen-mast, to extend from the lower deck beams downwards so as to receive not less than two bolts in a substantial part of the floors ; *or by orlop beams, sufficient in number and properly secured.* All ships having two decks, (viz. upper and lower deck,) and exceeding 23 feet in depth from the top of the limber-strake to the top of the upper deck beams, or having three decks (viz. upper, middle, and lower deck) and exceeding 23 feet in depth from the under side of the MIDDLE DECK, to have orlop beams, the number to be in no case less than one half the number of lower deck beams in the space between the foremast and the mizen-mast. The application of this Rule to British North American built Ships and Fir Ships will not exempt them from the full operation of the Rule, Section 62. All dimensions, fastenings, and bolts of the middle deck in Vessels having three decks, (viz. upper, middle, and lower deck,) to be the same as those prescribed in the Tables for the upper deck of ships having only two decks ; *and a reduction of one-sixth from the dimensions, fastenings, and bolts, prescribed in the Tables, for the upper deck of vessels having only two (viz. upper and lower deck), will be allowed in the third or upper deck, by some called a spar deck.* The middle deck to be a perfect deck laid and caulked. *The united lengths of poop and*

Table C, and the beams are either dowelled or dovetailed to their shelf-pieces and waterways, and the shelves and waterways are properly scarphed and through bolted, having also a hanging knee to the lower side of every beam end, then lodging-knees may be dispensed with, except in the mast-rooms. In Ships of 500 tons and under, where lodging knees properly bolted are applied, the ordinary plank clamps may be used, but the through bolting of them cannot be dispensed with.

SKETCH DESCRIPTIVE OF THE REQUIRED SHIFTING OF PLANK.—Section 45.



The Sketch shews the principle on which the Butts should be arranged, so as to avoid Stepping, which is deemed bad Workmanship.

forecastle not to exceed three-fifths of the entire length of the upper deck. All timbers of the frame including poop and forecastle to extend to the extreme height. Every ship exceeding 150 tons to have at least one crutch for the security of the heels of the after-timbers of the frame; one pair of pointers in addition to a knee at each end of the wing transom to connect the stern frame with the after-body of the ship; and a transom over the heels of the stern timbers properly kneed. The heels of the cant timbers forward and aft to be stepped into or on the deadwood, and bolted through.

42. Shifts of timber in ships of 200 tons and upwards, to be not less than one-seventh of the main breadth; and in ships under 200 tons, to be not less than one-sixth of the main breadth.

PLANK.

43. The outside planking to be of good quality, of the description prescribed in Table A, and to be clear of sap and free from all defects.

44. The inside planking to be of the description shown in Table A, and free from all foxy, druxy, or decayed planks. With regard to the ceiling plank, and the efficiency of its fastening, it will be required that the planking shall be properly shifted and fastened so that there shall be at least either treenails or through bolts, or short bolts, in each plank of the ceiling in every timber.

45. No butts to be nearer than five feet to each other (*see also Sec. 39*), unless there be a strake wrought between them, and then a distance of four feet will be allowed; and no butts to be on the same timber, unless there be three strakes between, as more particularly shown in the diagram annexed (*see Plate*), but vessels under 200 tons will be exempted from the full operation of this rule; and in ships of larger tonnage a literal compliance with it will be dispensed with in cases wherein it may be satisfactorily proved that the departure from the rule is only partial, being confined to the ends of the ship, or the planking of the topside, and does not injuriously affect the ship's general strength; but such relaxation will not be sanctioned unless an accurate description of the shifting of the plank be transmitted by the Surveyors, to enable the Committee to form a proper judgment on the case.

The thickness of the plank, according to the tonnage of the ship, is not in any instance to be less than is prescribed in Table B, following page 32.

The breadth of the wales in every case is to be regulated as under, viz. :—

When the extreme length of the ship, measured from the fore part of the stem to the after part of the stern post, on the range of upper deck, is six

times her depth of hold (and under), the wales are to be in breadth 3 in. to every foot of the depth of hold.

When the extreme length of the ship is eight times her depth of hold, the wales are to be in breadth $3\frac{1}{2}$ in. to every foot of the depth of hold.

When the extreme length of the ship is ten times her depth of hold (and above), the wales are to be in breadth 4 in. to every foot of the depth of hold.

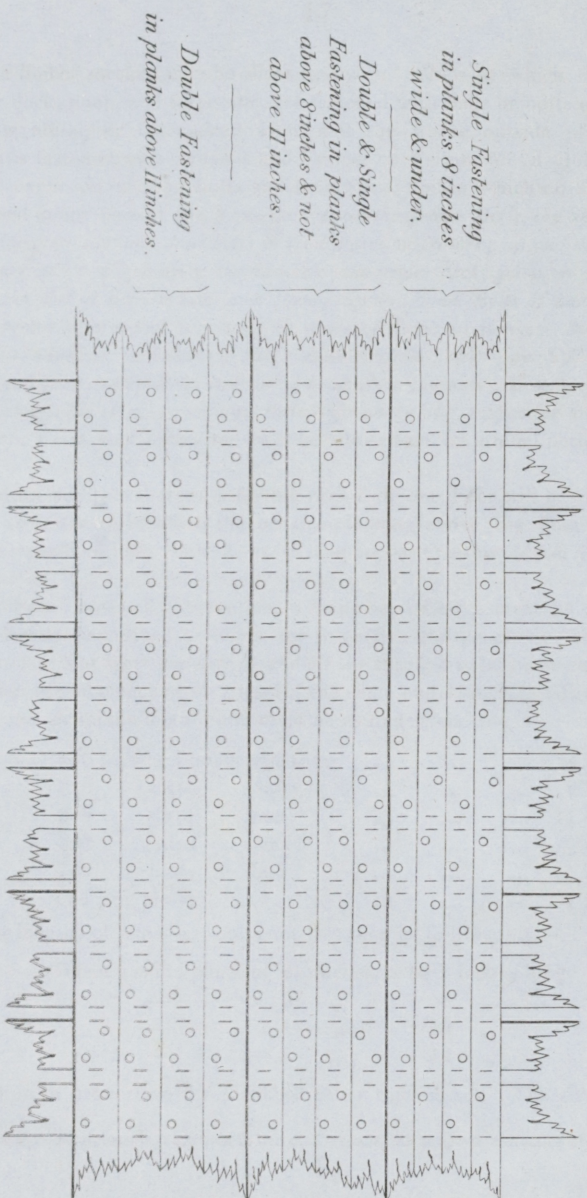
And other intermediate dimensions in these proportions.

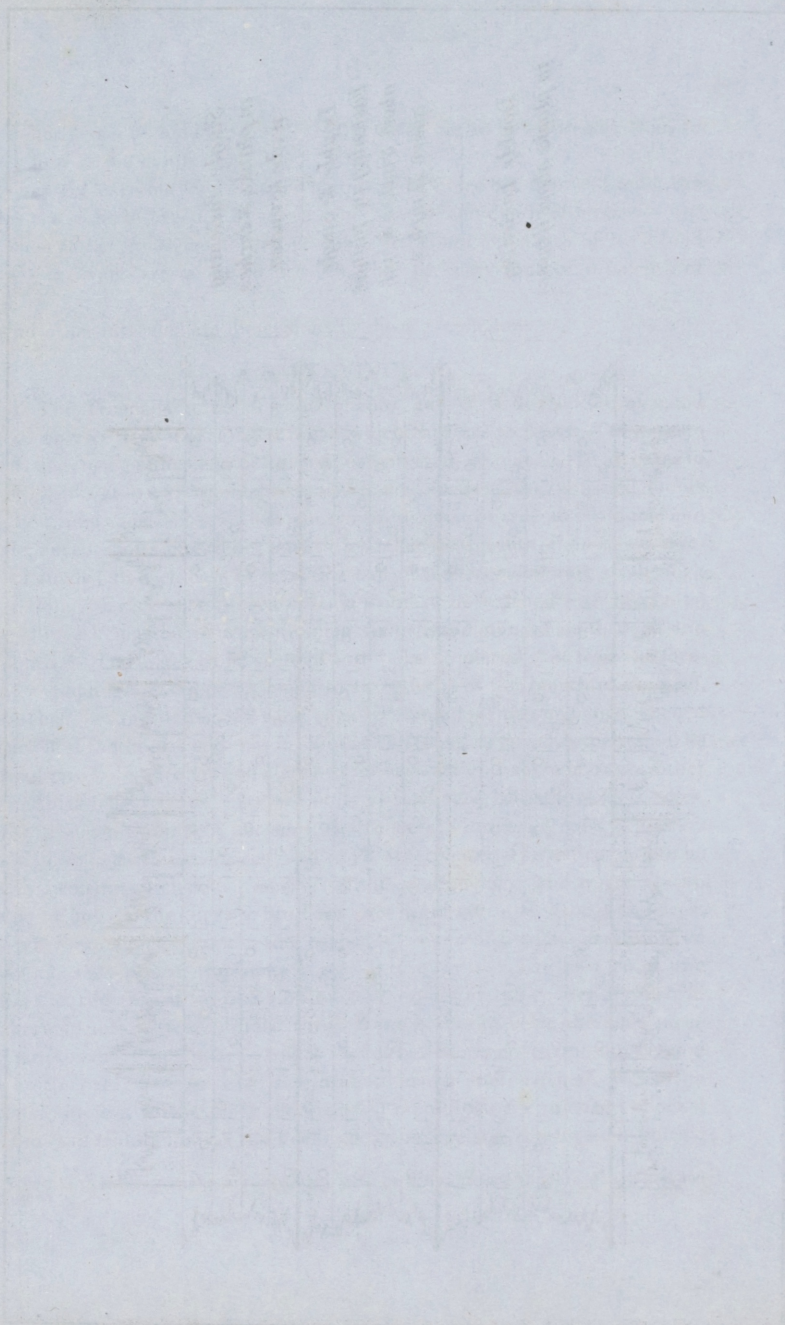
FASTENINGS.

46. The Treenails to be of good quality, and of a description of wood EQUAL TO THE BEST MATERIAL through which they are to pass. They are to be circular, being either engine-turned, compressed, or planed. In all cases in which planks above eleven inches in width shall be used, they must be double fastened; and those above eight inches in width must be treenailed double and single, except bolts intervene; and if less than that width, then to be treenailed single; in each case at least one-half of the treenails must go through the ceiling. Every butt in each outside plank to be fastened with *two* bolts, one of which may be in the adjoining timber, and one to be through and clenched.* The bilges to be secured with bolts so placed that from the foremast, extending a distance aft equal to three-fifths of the length of the keel, there shall, in ships under 300 tons, be at least one bolt through and clenched in each first foothook; and that in ships of 300 tons and upwards there shall be at least two bolts through and clenched for each set of timbers in one or other of the thick bilge strakes. All the bolts of the knees, breasthooks, crutches, riders, transoms, pointers, keelsons, shelf pieces, *waterways*, *heels of timbers against fore and after deadwood*, and of all other material fastenings, are to be driven through and clenched on rings of the same metal as the bolts. The up and down bolts in the knees to beams are not required to be through the deck, but whether clenched upon the beams, or upon the deck, they must be clenched on rings of the same metal as the bolts. The two bolts, the nearest to the crowns of the pintles and braces of the rudder are also to be through and clenched, those through the braces to be in the main piece of stern post. The limber strakes to be bolted down to the floors, and one bolt in every floor, on each side, to be through and clenched. When the heels of the first futtocks (either with full moulding or with *butted* chocks) meet at the middle line on the keel under the keelson, the through bolting

* Where thick garboard strakes are used, they must be bolted horizontally through the keel and each other.

SKETCH SHOWING THE PROPER ARRANGEMENT OF TREENAILS OR BOLTS-SECTION 46.





of the limber strakes may be dispensed with. Ships in which the flat of upper deck, poop, and forecastle, are fastened with nails or bolts of Copper, Yellow Metal, or Galvanized Iron, and the whole outside planking of which is fastened with treenails and Copper or Yellow Metal Bolts, to the entire exclusion of Iron Bolts and Iron Nails, and in which no Iron Bolts are used in any part of the Vessel, except—the *frame Bolts, the short Bolts of inside planking, and short bolts in iron plates on frames; up and down Bolts of knees which cli-ch upon the beams of the upper deck, poop, or forecastle, when the flat of deck is laid over them; up and down Bolts of hold or lower deck beams, fore and aft Bolts in arms of knees to beams; Bolts of the comings, windlass or bowsprit bitts; deck fixtures; the upper bolt in knee of head, and athwartship Bolts in knee of head afore the stem; Bolts or fastenings incidental to the rigging; or any fastenings above the respective planksheers of poop, waist, and forecastle*—will be allowed an additional period of one Year.

And, in addition thereto, a further period of one Year will be allowed to Ships so fastened, in which the outside planking above the floor heads is also fastened entirely with Bolts of Copper or Yellow Metal in lieu of Treenails.

In all such cases of substitution, the number of bolts must be the same as is already prescribed as above for treenails; the proportion of through bolts must be at least *one-half*; * and all the through bolts must be of malleable metal, and clenched on rings (of the same metal) inside. The sizes of the copper or mixed metal bolts must be as under, viz. :—

In ships of 150 tons and under 200 tons	...	...	...	$\frac{3}{4}$ in.
200 ditto 350	...	...	...	$\frac{3}{4}$ in.
350 ditto 500	...	...	...	$\frac{1}{2}$ in.
500 ditto 700	...	...	...	$\frac{3}{4}$ in.
700 ditto 900	...	...	...	$\frac{1}{2}$ in.
900 and above	...	...	...	1 in.

Smaller sizes must not be used.

and the lengths of the short bolts not less than as follows, viz.—

When used in plank of $2\frac{1}{2}$ inches, to be 7 inches long

—	3	”	8	”
—	4	”	10	”
—	5	”	12	”

and so on in proportion for plank of other thicknesses. The sizes of the

* Whenever *metal fastenings* are used in lieu of Treenails, this proportion must be observed.

bolts required in the several parts must not be less than is shown in Table D, following page 32.

47. In every case where the butt and bilge Bolts are not through and clenched, One Year will be deducted from the period which would otherwise be assigned in the classification of the vessel.

48. The Scantlings and dimensions for all sized vessels to be proportionately regulated, agreeably to Table B, following page 32.

49. Ships surveyed while building, in which *all the materials required for a Twelve Years' Ship shall have been used*, and most of the other requisites for that grade fulfilled, but which, from partial deficiencies, may not appear to be in all respects entitled to the full period, although superior to the description of a Ten Years' ship, may be marked in the Book thus, 11 A; thereby denoting that they are to remain on that grade *Eleven Years*, provided they be kept in a state of efficient repair.

50. Ships surveyed while building, in which every *alternate* set of timbers are frame-bolted together throughout their entire lengths, and the scantling and shifts of the timbers, the thickness and shifts of the planks, and size of fastenings may be the same as are required by the rules, and in which the chocks are wrought with a butt at each end, and the description of materials prescribed in the annexed Table A shall also have been used, but in which the frame is not so well squared as is required for Twelve Years' ships, but which shall be *in other respects* equal thereto, shall be marked "10 A;" thereby denoting that they are to remain on that grade for *Ten Years*, provided they be kept in a state of efficient repair.

51. In all other cases, ships surveyed while building, and constructed of the materials of good quality, hereinafter shown in Table A, will be allowed the several terms of years respectively appointed, provided they be kept in a state of efficient repair. All ships, *not built under Survey*, whether in the United Kingdom or abroad, for which a character may be claimed, must be placed in dry dock or laid on blocks in order that their bottoms may be seen and properly examined; they will also be required to have *their timbers completely exposed for examination, by a plank or list* AS THE SURVEYOR, (who must be an exclusive officer of the Society), MAY DIRECT, *being taken out, either inside or outside, all fore and aft, on both sides, equal to one entire strake, at the first foothook heads, and another between decks; and a few treenails must likewise be driven out, so that the Surveyors, from actual inspection, may be satisfied whether or not they are of the quality and make prescribed by the Rules; and the same being thus ascertained, shall be reported to the Committee, and a character assigned. If the ship*

be 400 tons and upwards, the Survey must be made by two Surveyors, and their report signed accordingly.

52. Ships built under a substantial and efficient Roof, kept in good repair, *which shall project at each end beyond the length, and on each side beyond the breadth, a quantity equal to half the breadth of the vessel*, shall have one year added to the period prescribed, provided they shall have been surveyed whilst building, and shall have occupied a period of not less than twelve months in their construction, *and not less than nine months (as part thereof) after the Frames shall have been completed.*

53. Ships built in the United Kingdom;—or in Quebec after 1851;—or St. John, New Brunswick after 1853;—or Miramichi, and Northern Ports of New Brunswick, or in Prince Edward Island after 1855;—and *not surveyed while building* by the Surveyors to this Society, and all ships, the owners or builders of which may have refused or declined to permit them to be surveyed at the several periods prescribed by the Rules, will have One Year deducted from the period which would otherwise have been assigned, in consequence of their not having been submitted to survey during their construction. In no case, however, will a higher grade than 10 A be assigned to ships built in the United Kingdom, which shall not have been surveyed while building.

CONTINUATION OF SHIPS A.

54. If, on the termination of the period of original designation, or if at any subsequent period not exceeding one-third of the number of Years assigned originally, or on Restoration, an Owner should wish to have his ship remain, or be replaced on the letter A (*vide section 59*), he is to send a written notice thereof to the Secretary, and the Committee shall then direct a Special Survey as follows to be held by not less than *two* competent persons to be appointed by the Committee, one of them to be a Surveyor the exclusive servant of the Society:—

SURVEY.

For the purpose of facilitating such survey, the ship shall be either placed in dry dock or laid on blocks, so that the keel may be examined, and be scraped from the light water-mark upwards, including the plank-sheer and waterways, so as to expose the surface of the plank to view.*

* If the Ship has been sheathed with wood over felt, fastened with copper or mixed metal nails, within a period of five years, and the plank from the light water-mark upwards shall, when so sheathed, have been brightened, and the condition of the bolts, planking, treenails, and caulking ascertained, and favourably reported upon by the surveyors; and provided that the sheathing which covers the binding bolts and raft ports, and a strake of sheathing all fore and aft on each side under the wales be removed, and listings of sheathing cut out at hood ends; and the planking, fastenings,

The hold to be cleared and proper stages made. The attention of the Surveyors shall then be particularly directed to the state of the upper or main deck and comings, the upper and lower deck bolts, and the outside planks through which they pass, the planksheers, waterways, and beams, so far as they can be examined; the hawse timbers, knight-heads, breasthooks, and transoms; the floors and keelsons; the keel and rudder; the planking outside, and the treenails passing through from the light water-mark upwards; the ceiling inside, and the frame and inner surface of the outside planking where it may be seen; and the sheer and general form of the ship; *and should any suspicious treenails or bolts appear, the same are to be driven out for inspection.* The Surveyors on these points shall transmit to the Committee a detailed report, accompanied by such observations as may occur to them, from inspection of the ship, or from information of the repairs she may have received. If from the report of such special survey the ship shall appear to be in a sound and efficient state, and to have preserved her original form unaltered, the Committee shall continue such ship on the letter A for such further period as they may think fit, not exceeding, however, one-third of the number of years which had been originally assigned. Ships so Continued shall be distinguished in the Register Book by the number of years for which the character is extended, being inserted separately under the number assigned on the original character, thereby denoting that the ship has been found on survey in such good and efficient order as to entitle her to be Continued for years. Ships built in the Colonies which shall have had the character A for four years, will be allowed a Continuation for *Two Years*, provided that, in addition to the above requisitions, and those prescribed by section 63, the Owners shall agree *to a strake in the Topsides, fore and aft*, on both sides, being also removed, and the ships, specially surveyed in that state, shall be found to be in a sound and efficient condition. The period assigned for Continuation will, upon all occasions, commence from the time the ship may have gone off the letter A, without regard to the date when the survey for this purpose may have been held.

In cases of the repair of ships for Continuation of character under the Rules, section 54, materials of an inferior description (but not below those prescribed for the six years' grade) may be permitted to be used in

and caulking so exposed, shall prove to be in good condition, then, on application to the Committee, the stripping from the light water-mark upwards may be dispensed with; but whenever the sheathing is removed, the outside planking is to be scraped or dubbed bright, and examined as prescribed by the above rule.

If the ship has been sheathed with metal within a period of two years, and it shall appear to the surveyors that stripping from the light water mark to the wales may be dispensed with, the case will receive due consideration on application to the Committee.

those parts which must of necessity, under the operation of the Rules, section 56, be *entirely removed* on a repair for Restoration; subject, however, to the ship-owner, in every instance, making a special application to the Committee for their previous sanction.

RESTORATION OF SHIPS TO THE CHARACTER A.

FIRST RULE.

55. If, at any time before the expiration of two-thirds of the number of years *beyond* the period originally assigned, an owner be desirous to have his ship Restored to the A character, such Restoration (on his consenting to the special survey hereinafter described, to be held by two Surveyors, and performing the repairs found requisite) will be granted for a period not exceeding two-thirds of the time originally assigned, the same to be calculated from the date of such repairs.

Requisites for Restoration.

56. All the bolts in the range of each deck to be driven out, and the planks taken out; the upper deck waterways, and planksheers and spirketting, and the strake next the waterways on the lower deck in the midships, to be taken out;* the sheathing to be entirely stripped off the bottom; *all the outside planking from the light water-mark upwards, to be scraped bright*; a strake in the upper course of the bottom, between the wales and the light water-mark fore and aft, and a plank in the ceiling at the floor heads on each side, to be taken out, the limbers to be clear, and the hooks forward to be exposed; and in that state the ship to be submitted to a special survey and examination, at which the attention of the Surveyors appointed by this Society is to be particularly directed to the state of the decks, the remaining plank of the topsides, the wales, upper courses, and treenails, and other fastenings; also to the state of the frame, hawse timbers, and knightheads, keelson, floors, foothooks, ceiling, and breasthooks, the

* In the cases of ships fastened with copper or yellow metal, to the exclusion of iron (in conformity with the Rule, Section 46), where there is no poop or fore-castle, if the whole of the plank-sheer and spirketting of upper deck and outside planking equal to one strake all fore and aft be removed in way of fastening bolts to each tier of beams, below the upper deck beams; and where there is a poop and fore-castle, then if the whole of the plank-sheer and spirketting of poop, fore-castle, and waist, and a strake of outside planking (in way of fastening bolts to upper deck beams), the entire lengths of the poop and fore-castle, and outside planking equal to one strake all fore and aft be removed in way of fastening bolts to each tier of beams below the upper deck beams; and in all cases a strake of deck next the waterway of each deck, on both sides, be removed, also the throat bolts of all knees, together with the other requisitions relating to the bottom, ceiling, &c., the further removal of fastenings, bolts, and planks, may, under the sanction of the Committee, be dispensed with, provided their condition be carefully ascertained and favourably reported upon by the Surveyors.

The above relaxations, so far as they relate to the removal of plank and fastenings in the range of the lower deck, will be extended to all ships in which all the lower deck fastenings are of copper or yellow metal.

rudder in all its parts and hangings; and if, after such examination, the Owner should consent to take out all planks, timbers, beams, knees, waterways, fastenings, and other parts that may be found defective, or objected to, and replace them with materials of the same species, or of equal quality with those of which the ship was originally constructed, such ships to be entitled to Restoration for a period proportionate to their real condition and the extent of the repairs performed; or if timber of an inferior description, or second-hand English or African Oak or Teak be used, then for a period not exceeding that for which such materials would have entitled a new ship to stand A according to the tables, subject in either case to the ship being at all times thereafter kept in a state of efficient repair.

SECOND RULE.

57. If, at any age of a vessel, an Owner be desirous to have his ship Restored, such Restoration (on his consenting to the special survey hereinafter described, to be held by two Surveyors, and performing the repairs thereby found requisite) will be granted for so long a period as may be deemed expedient by the Committee, not exceeding, in any case, the term of eight years.

Requisites for Restoration.

58. The whole of the outside plank of the vessel to be taken off as low as the second foothook heads, and the remainder of the planking, either outside or inside, together with all the decks, to be removed, *so as to expose the timbers of the frame entirely to view*, and in that state the ship to be submitted to a special survey and examination, by the Surveyors appointed by this Society; and if, after such examination all timbers, beams, knees, keelsons, transoms, breasthooks, remaining plank, inside or outside, or other parts found to be defective, be replaced with materials of the same species, or of equal quality with those of which the ship was originally constructed, and all the treenails driven out and renewed, such ship may be Restored. But if timber of an inferior description, or second-hand English or African Oak or Teak be used, then for a period not exceeding that for which such materials would have entitled a new ship to stand A according to the tables, subject, in either case, to the ship being at all times thereafter kept in a state of efficient repair.

59. Ships which have been *Restored* shall be entitled to Continuation, subject to the same conditions of survey and examination as are prescribed for ships proposed to be Continued at the expiration of the period first

assigned to them (Sec. 54); but in like manner, the term of such extended Continuance shall be limited to a period not exceeding one-third of the number of years for which the ships may respectively have been *Restored*, without any reference whatever to the period originally assigned to them. At the termination of the several periods assigned to ships for remaining on the character A, they will have the character A struck through, and the word '*lapsed*' inserted against them; and if not surveyed prior to the re-printing of the Register Book, they will appear without any character. But if during the *last year* of the period assigned to them, the Owners of a ship shall, in consequence of her being about to proceed on a distant foreign voyage, apply to have her surveyed for continuation on the letter A, or for the character A in red, a special survey shall be held conformably to the Rules, sections 54 or 60, as the case may be: and if from the report of such special survey, the ship shall appear to be in all respects in a sound and efficient state, such as is required by those Rules, the Committee shall, from the period at which the ship's character would terminate, continue her on the letter A, or assign to her the character A 1 in red in accordance with the Rules referred to.

SHIPS A, IN RED.

60. Ships that have passed the periods which have or might have been assigned to them for the character A originally, or on Continuation, or for Restoration, and shall be found on survey to be of a superior description, being fit for the safe conveyance of dry and perishable goods to and from all parts of the world, shall be classed A in Red, as the Second description of the First class. Those ships, however, the original construction of which, by their timber materials, may not have entitled them to the A character for a longer period than Five Years, will not be eligible for this character.

In all cases in which the owner may claim this character, the ship must undergo a special survey by two surveyors, (to be appointed in every instance by the Committee), one of whom shall be an exclusive officer of the Society, and be subject in other respects to a compliance with the undermentioned requisitions of Survey, viz.:—

FIRST SURVEY FOR A, IN RED.

The ship to be either placed in dry dock or laid on blocks, so that the keel may be examined, and be scraped or dubbed bright from the light water-mark upwards, including the planksheers and water-

rudder in all its parts and hangings; and if, after such examination, the Owner should consent to take out all planks, timbers, beams, knees, waterways, fastenings, and other parts that may be found defective, or objected to, and replace them with materials of the same species, or of equal quality with those of which the ship was originally constructed, such ships to be entitled to Restoration for a period proportionate to their real condition and the extent of the repairs performed; or if timber of an inferior description, or second-hand English or African Oak or Teak be used, then for a period not exceeding that for which such materials would have entitled a new ship to stand A according to the tables, subject in either case to the ship being at all times thereafter kept in a state of efficient repair.

SECOND RULE.

57. If, at any age of a vessel, an Owner be desirous to have his ship Restored, such Restoration (on his consenting to the special survey hereinafter described, to be held by two Surveyors, and performing the repairs thereby found requisite) will be granted for so long a period as may be deemed expedient by the Committee, not exceeding, in any case, the term of eight years.

Requisites for Restoration.

58. The whole of the outside plank of the vessel to be taken off as low as the second foothook heads, and the remainder of the planking, either outside or inside, together with all the decks, to be removed, *so as to expose the timbers of the frame entirely to view*, and in that state the ship to be submitted to a special survey and examination, by the Surveyors appointed by this Society; and if, after such examination all timbers, beams, knees, keelsons, transoms, breasthooks, remaining plank, inside or outside, or other parts found to be defective, be replaced with materials of the same species, or of equal quality with those of which the ship was originally constructed, and all the treenails driven out and renewed, such ship may be Restored. But if timber of an inferior description, or second-hand English or African Oak or Teak be used, then for a period not exceeding that for which such materials would have entitled a new ship to stand A according to the tables, subject, in either case, to the ship being at all times thereafter kept in a state of efficient repair.

59. Ships which have been *Restored* shall be entitled to Continuation, subject to the same conditions of survey and examination as are prescribed for ships proposed to be Continued at the expiration of the period first

assigned to them (Sec. 54); but in like manner, the term of such extended Continuance shall be limited to a period not exceeding one-third of the number of years for which the ships may respectively have been *Restored*, without any reference whatever to the period originally assigned to them. At the termination of the several periods assigned to ships for remaining on the character A, they will have the character A struck through, and the word '*lapsed*' inserted against them; and if not surveyed prior to the re-printing of the Register Book, they will appear without any character. But if during the *last year* of the period assigned to them, the Owners of a ship shall, in consequence of her being about to proceed on a distant foreign voyage, apply to have her surveyed for continuation on the letter A, or for the character A in red, a special survey shall be held conformably to the Rules, sections 54 or 60, as the case may be: and if from the report of such special survey, the ship shall appear to be in all respects in a sound and efficient state, such as is required by those Rules, the Committee shall, from the period at which the ship's character would terminate, continue her on the letter A, or assign to her the character A 1 in red in accordance with the Rules referred to.

SHIPS A, IN RED.

60. Ships that have passed the periods which have or might have been assigned to them for the character A originally, or on Continuation, or for Restoration, and shall be found on survey to be of a superior description, being fit for the safe conveyance of dry and perishable goods to and from all parts of the world, shall be classed A in Red, as the Second description of the First class. Those ships, however, the original construction of which, by their timber materials, may not have entitled them to the A character for a longer period than Five Years, will not be eligible for this character.

In all cases in which the owner may claim this character, the ship must undergo a special survey by two surveyors, (to be appointed in every instance by the Committee), one of whom shall be an exclusive officer of the Society, and be subject in other respects to a compliance with the undermentioned requisitions of Survey, viz.:—

FIRST SURVEY FOR A, IN RED.

The ship to be either placed in dry dock or laid on blocks, so that the keel may be examined, and be scraped or dubbed bright from the light water-mark upwards, including the planksheers and water-

ways, so as to expose the surface of the plank to view.* Iron bolts in number not less in any case than six on each side, in each range of the deck fastenings to be driven out in ships of 500 tons and under, and increased in number in proportion to the size of the ship, and one treenail to be driven out in every alternate frame or fourth timber between the upper edge of the wales and planksheers, and one in every alternate frame or fourth timber between the upper edge of the wales and the light water-mark, and such other parts of the bottom as the surveyors may direct, so as to enable a judgment to be formed as to the general state of the frame, treenails, and inside of the planking. The hold to be cleared, and proper stages made both inside and outside. The attention of the surveyors shall then be particularly directed to the state of the upper or main deck and comings, the upper and lower deck bolts, and the outside planks through which they pass, the planksheers, waterways, and beams, so far as they can be examined; the hawse timbers, knightheads, breasthooks, and transoms; the floors and keelsons; the keel, rudder, and windlass; the planking outside and inside, and the treenails; and the frame and inner surface of the outside planking, where they can be seen; and the sheer and general form of the ship; the condition of the cakum and caulking also to be ascertained, and the ship to be efficiently repaired with suitable materials as hereinafter stated.

SECOND SURVEY FOR A, IN RED.

(After two-thirds the number of years beyond that assigned originally, or on Restoration, have expired.)

But when a period of two-thirds of the number of years beyond that originally assigned for a vessel's retaining the A character, or if a period of two-thirds the number of years beyond that assigned on Restoration has elapsed, an owner be desirous to have his ship *retain*, or be placed upon, this character, application must be made to the Committee in writing, who will direct the survey to be made by two surveyors, one of whom shall be an exclusive officer of the Society; and for the purpose of holding such

* If the ship has been sheathed with wood over felt, fastened with copper or mixed metal nails, within a period of five years, and the plank from the light water-mark upwards shall, when so sheathed, have been brightened, and the condition of the bolts, planking, treenails, and caulking ascertained, and favourably reported upon by the surveyors; and provided that the sheathing which covers the binding bolts and raft ports, and a strake of sheathing all fore and aft on each side under the wales be removed, and listings of sheathing cut out at hood ends; and the planking, fastenings, and caulking so exposed shall prove to be in good condition, then, on application to the Committee, the stripping from the light water-mark upwards may be dispensed with; but whenever the sheathing is removed, the outside planking is to be scraped or dubbed bright, and examined as prescribed by the above rule.

If the ship has been sheathed with metal within a period of two years, and it shall appear to the surveyors that stripping from the light water-mark to the wales, may be dispensed with, the case will receive due consideration on application to the Committee.

survey, the ship must be placed in dry dock, or laid on blocks upon ways, so that the keel may be examined; all sheathing to be entirely stripped off the bottom and elsewhere; all the outside planking from light water-mark upwards, including the planksheers and waterways, to be scraped or dubbed bright;* the timbers of the frame to be exposed to view by the removal of planking equal to one strake fore and aft, on each side, above the wales, either inside or outside at the discretion of the surveyor; a short plank in each buttock; a plank or listing of sufficient breadth, on each side, at the discretion of the surveyor, in the ceiling above the floor heads in midships (or, if the ship-owner should prefer it, a plank outside at the same height), and a reasonable number of treenails before and abaft the same, so as to ascertain the state of the lower timbers of the frame; and in order to ascertain the condition of the beam ends, either a strake of deck next the waterways on each side to be taken out, or an examination be made by boring, at the option of the ship-owner; iron bolts and treenails to be driven out at the various parts as prescribed above;† proper stages to be made both inside and outside; and when in the state above described, the special survey to be held as above directed upon all the parts exposed to view; the condition of the oakum and caulking to be ascertained; the ship to be efficiently repaired with suitable materials, as hereinafter stated. And to entitle them to continue this character, such vessels will be required, in addition to the usual annual survey, to undergo a special re-survey, as prescribed above, within a period (from the date of the last special re-survey) not exceeding *two-thirds* of the several terms of years originally assigned to them, or earlier, if, in the judgment of the Surveyors, upon a careful examination of the ship, the same shall appear to them to be necessary.

In the repair of vessels for the above character, no materials may be used of a description inferior to those allowed in new Ships for the Six Years' grade.

Whenever it shall appear to the Surveyors that a vessel classed A, in Red, shall no longer be in a condition to deserve that character, notice of the proposal to reduce her shall be given in writing to the Owner, Master, or Agent, in the same manner as is prescribed by the rules, section 21, page 7.

N.B. Ships at present classed with the *Æ* asterisk character will be allowed to retain the same, subject to annual Survey, until the expiration of the period for which they have already been specially surveyed.

* See note preceding page.

† In the case of doubled ships, or ships of peculiar construction, special application may be made to the Committee.

SHIPS Æ.

61. Ships that have passed the prescribed age for the A Character, but have not undergone the repairs which would have entitled them to be Continued or Restored; or having been Continued or Restored, and the additional period thus assigned expired, and also such ships as have never had an original character, which shall be found on survey fit for the conveyance of dry and perishable goods on *shorter voyages*, shall be distinguished by the diphthong Æ; and a careful survey will be required to be made *annually*, or on the return of the ship from every foreign voyage, by one of the Surveyors to this Society, who is to state distinctly and separately the actual condition of the *upper deck fastenings, waterways, spirketting, planksheers, topsides, upper deck with its appendages, lower deck fastenings, wales, counter, plank, and treenails outside to the water's edge, rudder, windlass and capstan, beams, breasthooks, transoms, and timbers*; but if not surveyed within twelve months, such ship having been during that time in some port in the United Kingdom, the character will be omitted until such survey be held; or, as the case may be, she will be allowed to pass into the class E.

62. Ships built in the British North-American Colonies, and all ships wherever built, the frames of which are composed of *Fir*, of 400 tons and above, shall, in order to entitle them to be classed in the Register Book of the Society, be secured in their bilges by the application of iron knee riders, or hanging knees and riders to cover the joints of the floor and foothook heads, to extend from the height of the hold beams to the floors so as to receive not less than two bolts in a substantial part of the floors; the number of iron knees and riders to be not less than one of each to every hold or lower deck beam on each side. The knees to be connected with the riders or not, at the option or convenience of the owners; but if not so connected, the side arms of the knees are to be of the length and to be fastened as prescribed in Table F. The number of knees to each deck, and of riders, also their dimensions, and number of bolts, are fully explained in Table F. All ships built in the Colonies will be considered as "iron fastened" in their centre lines, unless it shall be satisfactorily shown to the contrary, either by the exposure of some of the bolts, or by a certificate to be produced from the builders.

On and after the 1st January, 1858, ships which proceed to sea *without being fastened with the iron knees and riders prescribed by the rules*, will

have one year deducted from the period to which they would otherwise be entitled to be classed in the Register Book.

Ships built in the British North American Colonies, and all ships the frames of which are composed of Fir, of 600 tons and upwards, and *all ships (wherever built)* the length of which (measured from the fore part of the stem to the after part of the stern-post on the range of upper deck), shall exceed five times their extreme breadth, shall have diagonal iron plates closely inserted either outside or inside the frame. If placed outside, the said plates to extend from the upper side of upper tier of beams to the lower part of chocks at first foothook heads amidship, and to the same perpendicular height forward and aft, measured from the lower part of the keel; and if placed inside, the plates are to extend from the upper side of upper tier of beams to the lower part of chocks at *floor heads*. Whether placed outside or inside, the sizes of the plates not to be less than as follows, viz. :—

In ships of 100 tons and under 200 tons	...	3½ by $\frac{7}{16}$ inch.
„ 200 „ 400	...	4 by $\frac{1}{2}$ „
„ 400 „ 700	...	4 by $\frac{5}{8}$ „
„ 700 „ 1,000	...	4½ by $\frac{3}{4}$ „
„ 1,000 „ 1,500	...	5 by $\frac{3}{4}$ „
„ 1,500 and above	.....	5½ by $\frac{7}{8}$ „

and to be fastened with bolts, one at each alternate timber if outside, and one at each timber if inside, not less in diameter than the sizes given for “through butt bolts” in Table D.

The number of plates to be in proportion of not less than one pair to every 12 feet of the ship’s entire length taken as above, but not to be more than eight feet asunder measured on a square; the said plates are to be placed diagonally, at an angle of not less than 45 degrees, their lower ends pointing to the after end of the keel in the after body, and to the fore end of the keel in the forebody, four pairs crossing each other amidship.

In ships the length of which shall exceed *six* times their extreme breadth, the number of plates must be not less than one pair to every *ten* feet of the ship’s entire length taken as above, but not to be more than six feet asunder measured on a square, and to be placed diagonally as above described. And in addition thereto, such ships must be fitted with a rider keelson, or a pair of sister keelsons, at the option of the owner,—the transverse sectional area of such rider keelson or sister keelsons each to be equal to two-thirds of that required in Table B for main keelsons.—If a rider keelson be adopted, it

must be fastened with through bolts of the size required in Table D for keelson bolts, and in number not less than one in every alternate floor.—If sister keelsons be fitted, they must be fastened with through bolts, in number not less than one in every alternate timber, and of the size required in Table D for “scarphs of keels,” &c.

All such ships to have shelves and waterways to each tier of beams, each equal in contents to the transverse sectional area of the beams of their respective decks at their ends; each of the said shelves and waterways to be bolted through the outside planking at every timber, with bolts of the sizes given in Table D; likewise the shifts of inside and outside planking not to be less than 6 feet, unless there be a strake wrought between them, and then a distance of 5 feet will be allowed.

63. All British North-American built ships, which have gone, or may go off the List of Ships of the A character, or which may be of an age exceeding the period for which they might have had claims to be put upon that grade (whether classed or not), shall, as from time to time they come under examination, be subjected to a careful survey, to be made by one of the Surveyors to this Society;—and no further character shall be assigned them unless a survey shall be held as follows; and planking, either inside or outside, at the discretion of the Surveyors, in quantity equal to *one entire strake* fore and aft on both sides, shall be removed; to be taken out in midships immediately above the turn of the bilge, and *at such height* forward and aft as may, in their judgment, best expose the timbers of the frame to view; that a special report of the state of these timbers, and of the general state and condition of the upper deck fastenings, waterways, spirketting, planksheers, topsides, upper deck with its appendages, lower deck fastenings, wales, counter, plank and treenails outside to the water's edge, rudder, windlass and capstan, beams and breasthooks, shall be transmitted by the Surveyors to the Committee; and on the receipt of such report the character shall be assigned. If the *Æ* character be then assigned, it shall be continued (subject to an annual survey) for a period not exceeding the number of years originally assigned; at the expiration of which the character will be discontinued, unless a similar survey and examination of the frame be again submitted to.

SHIPS E

64. Will comprise all ships which shall be found on survey fit for the conveyance of cargoes not in their nature subject to sea damage *on any voyage*.

65. Subject to occasional inspection, at least once in every two years, ships will continue in this class so long as their condition shall, in the opinion of the Committee, entitle them thereto.

SHIPS I

66. Will comprise ships which shall be found on survey fit for the conveyance, *on shorter voyages* (not out of Europe), of cargoes in their nature not subject to sea-damage.

67. The Bottom of every ship is to be CAULKED* once in every five years, unless wood-sheathed and felted, and then once in every seven years, except in the case of *Teak-built ships*, upon which a special survey may have been requested, and the Surveyors having ascertained, by the removal of a strake of sheathing fore and aft under the wales, and a strake at the first foothook heads, and by causing listings to be cut out at the wood's ends, that such caulking is not required, the same may then be dispensed with. If any ship shall be stripped within the periods above mentioned, her bottom is to be caulked, *if necessary*.

68. In all cases in which ships may be doubled, doubling of not less than the thicknesses hereinafter mentioned will be required, the same to be properly wrought and fastened as follows: in every instance the doubling is to be at least single fastened either with treenails or with bolts, and a through bolt in every butt. If treenails be used, every treenail must, if practicable, be a through fastening; and if bolts be used, then one-sixth of them from the lower part of the bilge upwards must be through and clenched on the ceiling in addition to the butt bolts. In all cases of doubling, the rudder braces are to be removed.

The throat bolts of iron knees, and the bolts of iron hooks, crutches, and pointers, must be renewed through the doubling.

The thickness of the doubling for the wales and bottom, on ships

Under 400 tons to be not less than	...	2 inches
of 400 „ and under 600 tons	...	2½ „
of 600 „ and above	...	3 „

* In cases where ships have been doubled with doubling of less thickness than is required by, or not fastened in accordance with, the rules, it will not be imperative that such doubling be stripped at the expiration of seven years as required for ordinary sheathing; but if, upon survey, the doubling be found in good condition, the period for its remaining on may be extended, with the sanction of the Committee, to a term not exceeding ten years, provided the doubling below the wales be copper or yellow metal fastened or treenailed.

On the Topsides of ships not exceeding 300 tons, the thickness may be $1\frac{1}{2}$ inches.

Where ships are *diagonally* doubled, the thickness of the materials for *wales and bottom* may be $\frac{1}{2}$ an inch less than prescribed above, but in no case to be less than two inches thick.

No ship hereafter doubled, shall be entitled to the character A in red, or any higher class, unless it shall be ascertained at the time of doubling that the frame is capable of securely retaining the fastenings.

IRON-FASTENED SHIPS.

69. All ships although iron-fastened (except as hereinafter mentioned) shall be classed in the same manner as copper-fastened ships, so long as they remain unsheathed with copper, provided they are, in all other respects, constructed in accordance with the Rules; but when sheathed with copper over the iron fastenings, the words "Coppered over Iron Bolts" shall be added to the character in the Register Book, and continued until the ship be thoroughly copper-fastened.

70. Ships built in India, although fastened with iron, shall be permitted to be copper-sheathed without any mark being placed in the Book, provided the bottom be felted or chunamed and wood-sheathed, and subjected to a careful examination of the iron fastenings on every occasion on which the sheathing is stripped off, for which purpose some of the bolts and nails are to be taken out of the lower part of the bottom, and to be seen by the Surveyor; but no such ship shall be permitted to continue either on the A or on the A in red class for a longer period than one-half the number of years beyond the term originally assigned for her remaining on the A character, unless the bottom shall have been doubled, or the whole of the iron fastenings taken out or properly secured, and the bottom refastened with bolts, or tree-nails, or both, including the middle line, breasthook, and crutch bolts.

ANCHORS, CABLES, AND STORES.

71. All vessels are required to have their masts, spars, and standing rigging in good order, and sails in sufficient number and good condition, and every ship is to be supplied with a good hempen stream-cable or hawser of sufficient size and length, and with at least one good warp; and all vessels are to be provided with anchors of proper weight, and cables of approved quality and size, properly tested, in number and length according to the following scale:—

ANCHORS.

72. All vessels under 200 tons to have at least two bower anchors, and all vessels of 200 tons and above, to be provided with at least three bower anchors.

Cables.

	Tons.	Fathoms.
73. All vessels under 100 to have at least 120 if chain.		
— of 100 and under 150	150	do.
— 150	250	180 do.
— 250	350	200 do.
— 350	500	240 do.
— 500	700	270 do.
— 700 and upwards		300 do.

The length and condition of the Chain Cables are to be ascertained by removal from the lockers on every Special Survey for Classification.

A Certificate of all new Chains having been tested, and of the strain applied to them, must be produced before a Ship is classed. The amount of strain applied should be marked on each length.

74. In all cases where hempen cables are used, one-sixth more in length will be required.

BOATS.

75. All vessels under 150 tons to be provided with one good Boat; and every vessel of 150 tons and above to have a suitable number.

76. The efficient state and condition of ships' anchors, cables, and stores, will be designated by the figure 1; and where the same are found insufficient in quantity, or defective in quality, by the figure 2.

SHIPS NAVIGATED BY STEAM.

77. Steam ships are to be subject to the same periodical surveys as sailing vessels, and whenever the boilers are taken out, the vessel is to be submitted to a particular and special survey, in order to ascertain her general condition.

78. That with respect to the Boilers and Machinery, the Owners are required to produce to the Surveyors at the above-directed surveys, a certificate from some competent *Master Engineer*, describing their state and condition at those periods; and to which certificate it is desirable there should be added a description of the particulars of the same, as far as may be practicable, in the manner and form annexed, No. 8; to be appended to the report of survey, and delivered to the Committee, who will thereupon insert

in the Register Book the letters "M.C." denoting that the boilers and machinery have been inspected and certified to be in good order and safe working condition; but if no certificate of their condition be furnished by the Owner or Master, then no character can be assigned for the machinery.

79. **HULL:**—The Surveyors are directed to examine and report the scantling of timbers, plank, and fastenings, and to state where built, and by whom, in the same manner as directed for sailing vessels.

80. The Surveyors are required to report the number, size, length, fastenings, and mode of arrangement of the engine and boiler *sleepers*, and the description of timber of which they are composed, and whether diagonally trussed with wood or iron, and to what extent; the length, size, and fastenings of shelf-pieces and paddle-beams; and whether the vessel be constructed with spongings, and how they are formed; and to give the length and shifting of the plank outside and inside.

81. **MATERIALS AND STORES:**—The Surveyors are to examine and report the number and description of the masts, sails, anchors, cables, hawsers, warps, and boats, as directed to be done for sailing vessels; but the anchors and cables will not be required to exceed in weight and length those of a sailing vessel of two-thirds of the total tonnage of the steam-vessel.

82. The Surveyors are to be particular in examining and reporting the condition of the boats of all vessels employed in carrying passengers.

The foregoing Rules having been amended or altered in sections 31, 37, 39, 45, 46, 50, 54, 56, 60, 62, 77, 79, 80, 81, and 82, in conformity with the several Resolutions passed by the Committee, the attention of Ship-owners and Ship-builders is respectfully invited to the consideration of these Rules, as well as to the amended Tables A, F, and G.

It will be likewise observed, that the relaxations in favour of steam ships heretofore allowed by the Rules, Sections 79, 80, and 81, as regards materials and scantlings, have been discontinued; and steam ships hereafter built will be subject to the same requirements in these respects as sailing vessels.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill.*

1st July, 1858.

		Floors.	First Foothooks
1	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, & Iron Bark	12	12
2	Mahogany of Hard Texture and Cuba Sabieu and Pencil Cedar	10	10
3	Adriatic, Spanish, and French Oak	10	10
4	+Red Cedar, Angelly, and Venatica	9	9
5	Other Continental W. Oak, Span. Ches., Stringy Bark, & Blue Gum	9	9‡
6	North American White Oak and American Sweet Chesnut.....	8	8‡
7	Larch, Hackmatack, Tamarac, and Juniper	7	7
8	Pitch Pine	7	7
9	Second-hand English Oak, African Oak, and East-India Teak	7	7
10	Cowdie	6 ¶	6
11	Baltic and American Red Pine....	5	5
12	English Ash	7	6
13	Foreign Ash	5	5
14	American Rock Elm	6 ¶	6
15	European and American Grey Elm	5	5
16	Black Birch	5 ¶	5**
17	Spruce Fir	5	5
18	English Beech	5 ¶	4
19	Yellow Pine	—	—
20	Hemlock	4	4

§ The use of Elm and Bee

TABLE A.

EXHIBITING THE NUMBER OF YEARS ASSIGNED TO THE DIFFERENT DESCRIPTIONS OF TIMBER, OF GOOD QUALITY, AS USED IN THE TIMBERING AND PLANKING OF SHIPS.

		TIMBERING.									Rudder and Windlass. — Main Pieces.	OUTSIDE PLANK.					INSIDE PLANK.				
		Floors.	First Foothooks.	Second Foothooks.	Third Foothooks and Top Timbers.	Main and Rider Keelsons.	Stem and Stern Post.	Transoms, Knight-heads, Hawse-Timbers, Apron, and Deadwood*.	Beams and Hooks.	Knees.		Keel to First Futtock Heads.	First Futtock Heads to Light Mark.	Light Mark to Wales.	Wales, Black-Strakes, Topsides, and Sheer-strakes.	Upper deck Waterway, Spirk'ting, and Planksh'rs.	Limber Strakes and Bilge Strakes.	Ceiling: Lower Hold and between Decks.	Shelf Pieces Clamps, & Lower Dk Waterway		
1	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, & Iron Bark	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, & Iron Bark	1	
2	Mahogany of Hard Texture and Cuba Sabicu and Pencil Cedar	10	10	10	10	10	10	10	12	12	10	12	12	10	10	10	12	12	12	Mahogany of Hard Texture and Cuba Sabicu and Pencil Cedar	2
3	Adriatic, Spanish, and French Oak	10	10	9	9	10	9	9	10	10	9	12	12	10	9	10	12	12	12	Adriatic, Spanish, and French Oak	3
4	†Red Cedar, Angelly, and Venatica	9	9	9	9	10	9	9	10	10	—	12	12	12	10	10	12	12	12	†Red Cedar, Angelly, and Venatica	4
5	Other Continental W. Oak, Span. Ches., Stringy Bark, & Blue Gum	9	9‡	7	7	9	7	7	8	8	7	12	12	9	8	9	10	10	10	Other Continental W. Oak, Span. Ches., Stringy Bark, & Blue Gum	5
6	North American White Oak and American Sweet Chesnut.....	8	8‡	7	7	8	7	7	7	7	7	12	10	8	7	7	9	9	9	North American White Oak and American Sweet Chesnut	6
7	Larch, Hackmatack, Tamarac, and Juniper	7	7	7	7	8	7	7	7	7	7||	12	10	8	7	10	7	8	8	Larch, Hackmatack, Tamarac, and Juniper	7
8	Pitch Pine	7	7	7	7	9	7	7	8	8	7||	12	12	9	9	10	9	9	9	Pitch Pine	8
9	Second-hand English Oak, African Oak, and East-India Teak	7	7	6	6	6	5	6	6	6	5	—	—	—	—	5	5	5	5	Second-hand English Oak, African Oak, and East-India Teak	9
10	Cowdie	6 ¶	6	6	7	7	6	7	7	7	—	10	9	8	7	10	7	8	8	Cowdie	10
11	Baltic and American Red Pine....	5	5	5	7	7	5	7	7	7	5||	9	9	8	7	10	7	8	8	Baltic and American Red Pine	11
12	English Ash	7	6	5	5	5	4	4	5	5	5||	10	7	4	—	—	5	5	4	English Ash	12
13	Foreign Ash	5	5	4	4	5	4	4	5	5	—	10	7	4	—	—	5	5	4	Foreign Ash	13
14	American Rock Elm	6 ¶	6	5	5	6	5	5	5	5	4	12§	8	6	5	5	7	6	6	American Rock Elm	14
15	European and American Grey Elm	5	5	4	4	4	4	4	5	5	—	12§	8	5	4	4	5	5	4	European and American Grey Elm	15
16	Black Birch	5 ¶	5**	4	4	4	4	4	4	4	4||	10	7	4	4	4	5	5	4	Black Birch	16
17	Spruce Fir	5	5	4	4	4	4	4	4	7	4||	6	5	4	4	4	5	5	4	Spruce Fir	17
18	English Beech	5 ¶	4	—	—	4	—	—	—	—	4||	12§	8	4	—	—	5	5	4	English Beech	18
19	Yellow Pine	—	—	—	4	4	4	4	4	4	—	6	5	5	5	5††	5	5	5	Yellow Pine	19
20	Hemlock	4	4	4	4	—	—	—	4	4	—	4	4	4	4	4	4	4	4	Hemlock	20

* This Table applies as to the Deadwood so far as regards the Material to be used from the height of two feet above the rabbet of the Keel. † Live Oak and Red Cedar admitted alternately in Timbers of the Frame for 10 A.

‡ If the First Foothooks run up above the Light Watermark, the use of Foreign White Oak is allowed for the 7 years' grade only.

§ The use of Elm and Beech, in Ships above the 8 years' grade, to be restricted to a height from the lower part of the Main Keel, of one-third of the internal depth of the Ship measured, in midships, from the top of the Limber Strake to the top of the Upper Deck Beams.

¶ Black Birch, Beech, American Rock Elm, and Cowdie, allowed for Floors in Midships, to an extent not exceeding one-half the entire length of the Keel, in Ships of the 7 years' grade.

** Black Birch allowed for First Futtocks amidships, to the same extent in Ships of the 6 years' grade.

†† Yellow Pine allowed for Waterways of Upper Deck in Ships of the 7 years' grade, if properly fastened, as prescribed in Table B, and provided the Beams are well secured independently of the Waterways.

White Cedar allowed for Third Foothooks and Top timbers in Ships of the 7 years' grade. MEM.—The word "English" includes Timber the growth of the United Kingdom. — For relaxation in favour of Steam Vessels, vide Rules, page 24.

The Materials marked thus || under the head of "Rudder and Windlass," allowed in Ships of 300 Tons and under only.

TABLE B.

MINIMUM DIMENSIONS OF TIMBERS, KEELSON, KEEL, PLANKING, &c.

MINIMUM DIMENSIONS OF TIMBERS, KEELSON, KEEL, PLANKING, &c.																										
TONNAGE TONS	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1050	1150	1250	1350	1500	1750	2000
TIMBER AND SPACE INCHES	18	19	20	21½	23	24¼	25¾	27¼	28½	30	30¾	30½	31	31¼	31½	31¾	32¼	32½	32¾	33¼	33½	33½	33¾	34	34½	35
Floors, sided and moulded at Keelson, if square	7	7½	8	8¾	9½	10¼	11	11¾	12½	13	13¾	13¼	13½	13½	13¾	13¾	14	14	14¼	14½	14¾	15	15¼	15½	15½	15¾
Double Floors, sided and moulded at Keelson, if square	6	6½	7	7¾	8½	9¼	10	10½	11¼	12	12¾	12¼	12½	12½	12¾	12¾	13	13	13¼	13½	13¾	14	14¼	14½	14½	14¾
1st Futtocks, sided and moulded at Floor Heads, if square	6	6½	7	7¾	8¼	8¾	9¼	10	10½	11	11¾	11½	11¾	11¾	12	12¼	12¼	12½	12¾	13½	13½	13¾	14¼	14¼	14½	14¾
2nd Futtocks, sided, if square	5½	6	6½	7	7½	8	8½	9	9½	10	10¼	10½	10¾	10¾	11	11¼	11¼	11½	11¾	12¼	12½	12¾	13¼	13¼	13½	13¾
3rd Futtocks and Long Top Timbers, sided, if square	5½	5¾	6	6½	7	7¼	7¾	8¼	8½	9	9¼	9½	9¾	9¾	10	10¼	10¼	10½	10¾	11¼	11½	11¾	12¼	12¼	12½	12¾
Top Timbers (Short) sided, if square . . . . .	..	..	..	..	..	..	..	..	..	9	9¼	9¼	9¼	9½	9½	9½	9¾	9¾	10	10	10¼	10½	10¾	10¾	11	11¼
Top Timbers, moulded at heads, if square	4	4½	4¾	5	5	5¼	5½	5¾	6	6	6¼	6¼	6¼	6½	6¾	6¾	7	7	7¼	7¼	7½	7¾	8½	8½	8¾	9
Breasthooks & Wing Transom, sided & moulded in the middle	8	8½	9	9¾	10¼	10¾	11¼	12	12½	13	13¼	13¼	13½	13½	13¾	13¾	14	14	14¼	14½	14¾	15	15¼	15¼	15½	16
*Keel, Stem, Apron, and Sternpost, sided and moulded	8	9	10	10¾	11¼	11¾	12½	13	13½	14	14¼	14¼	14½	14½	14¾	14¾	15	15	15¼	15½	15¾	16	16¼	16½	16¾	17
Keelson, sided and moulded	9	10	11	11¾	12¼	12¾	13¼	14	14½	15	15¼	15¼	15½	15½	15¾	15¾	16	16	16¼	16½	16¾	17	17¼	17½	17¾	18
** Wales	3	3½	4	4¼	4½	4½	4¾	4¾	5	5	5	5	5¼	5¼	5¼	5½	5½	5½	5¾	6	6	6	6¼	6½	6¾	7
†Bottom Plank, from Keel to Wales	2	2¼	2½	2¾	3	3¼	3½	3¾	3¾	4	4	4	4	4	4	4¼	4½	4½	4½	4½	4½	4½	4½	4½	4½	5
Sheer Strakes, Topsides, Upper Deck Clamp where there is no Shelf fitted, and Lower Deck Clamp with a Shelf	2¼	2½	3	3¼	3½	3½	3¾	3¾	4	4	4	4	4	4¼	4½	4½	4½	4½	4½	4½	4½	4¾	4¾	5	5¼	5½
Ceiling below Hold Beam Clamp	1½	1¾	2	2¼	2½	2¾	2¾	2¾	3	3	3	3¼	3½	3½	3½	3½	3½	3½	3½	3½	3¾	3¾	4	4	4¼	4½
‡Waterway, { Hardwood	3½	4	4½	5	5	5½	5½	6	6	6½	6½	6½	7	7	7	7	7½	7½	7½	7½	7½	8	8	8½	8½	9
{ Fir	4	4½	5	5½	6	6½	6½	7	7½	8	8	8	8½	8½	8½	8½	9	9	9	9	9	9½	9½	9½	9½	10
Ceiling betwixt Decks	1½	1¾	2	2	2¼	2¼	2¼	2½	2½	2½	2½	2½	2½	2½	2¾	2¾	2¾	2¾	2¾	2¾	2¾	3	3	3¼	3½	3½
Bilge Plank, inside, Thick Strakes over long and short Floorheads, and Limber Strake	2½	2¾	3	3¼	3½	3½	3¾	3¾	4	4	4¼	4¼	4½	4½	4¾	4¾	5	5	5¼	5½	5¾	6	6¼	6¼	6½	7
Lower Deck Clamp where there is no shelf fitted, and Spirketting . . . . .	..	..	3	3¼	3½	3¾	4	4	4¼	4½	4½	4¾	4¾	4¾	4¾	4¾	5	5	5	5¼	5¼	5½	5½	5½	5¾	6
Upper Deck Clamp where a shelf is also fitted	2	2¼	2½	2½	2¾	2¾	2¾	2¾	3	3	3	3¼	3¼	3¼	3¼	3½	3½	3½	3½	3¾	3¾	4	4	4¼	4½	5
Planksheer	2	2¼	2½	2½	3	3¼	3½	3¾	3¾	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4½	4½	5
Flat of Upper Deck	2½	2½	2½	2½	2½	3	3	3	3	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	4	4	4	4	4	4
Scarp of Keelson without Rider	ft. in. 4 6	ft. in. 4 9	ft. in. 5 0	ft. in. 5 3	ft. in. 5 6	ft. in. 5 10	ft. in. 6 2	ft. in. 6 6	ft. in. 6 9	ft. in. 7 0	ft. in. 7 0	ft. in. 7 0	ft. in. 7 0	ft. in. 7 0	ft. in. 7 3	ft. in. 7 3	ft. in. 7 3	ft. in. 7 3	ft. in. 7 6	ft. in. 7 6	ft. in. 7 9	ft. in. 7 9	ft. in. 8 0	ft. in. 8 0	ft. in. 8 0	ft. in. 8 0
Ditto, where Rider Keelson is added, also Scarphs of Keel	4 0	4 3	4 6	4 9	5 0	5 2	5 4	5 6	5 9	6 0	6 0	6 0	6 0	6 0	6 3	6 3	6 3	6 3	6 6	6 6	6 9	6 9	7 0	7 0	7 0	7 0

Moulding of Futtocks and Top Timbers to diminish gradually from size given at Floor Heads to that at Top Timber Heads. See Rule, sec. 38.

** For Breadth of Wales required in every case, see Section 45.

* The rabbet of the Keel, Stem, and Sternpost to be made so as to leave a sufficient substance of wood to form a substantial back rabbet.

† All the fore and after hoods, both outside and inside, may be reduced one-sixth in thickness. Furrers are not allowed in this or in any other part of a ship.

‡ This Depth of Waterway for Faying Surface against Timbers is required, below the underside of the Planksheer, to receive in and out through Bolts at alternate Timbers, with alternate through bolts in Shelf and in Clamp where there is no Shelf.

MEM.—In the inside and outside planking, waterways, planksheers, and flat of deck of full poops and top-gallant forecastles, a reduction of *one-fourth* from the thickness required by the Table B for such planks in the range of the upper deck in ships with two decks, will be allowed; and in the siding and moulding of the top timbers and beams of full poops and top-gallant forecastles, a reduction of *one-fifth* will be allowed. In the inside and outside planking, waterways, planksheers, and flat of deck of raised quarter decks, a reduction of *one-fifth* from the thickness required by the Table B for such parts in the range of the upper deck in ships with two decks, will be allowed.—See Rule, Section 38.

TABLE C.

SIDING AND MOULDING OF BEAMS.—Sec. 41.

LENGTH OF BEAM amid-ships.	HOLD BEAMS		DECK BEAMS	
	sided and moulded.	moulded at ends.	sided and moulded.	moulded at ends.
Feet	Inches.	Inches.	Inches.	Inches.
10	—	—	4½	3¾
11	—	—	5	4
12	—	—	5¼	4¼
13	—	—	5½	4½
14	—	—	5¾	4¾
15	8	6¾	6½	5½
16	8½	7	6¾	5¾
17	8¾	7½	6¾	5¾
18	9¼	7¾	7	5¾
19	9½	8	7¼	6
20	10	8½	7½	6¼
21	10¼	8¾	7¾	6½
22	10½	9	8	6½
23	11	9¼	8¼	6¾
24	11¼	9½	8½	7
25	11¾	9¾	8½	7¼
26	12	10	8¾	7½
27	12¼	10¼	9	7½
28	12½	10½	9	7½
29	12¾	10¾	9¼	7¾
30	13	11	9½	8
31	13¼	11¼	9½	8
32	13½	11½	9¾	8¼
33	13¾	11¾	10	8¼
34	14	11¾	10	8½
35	14¼	12	10¼	8½
36	14½	12¼	10½	8½
37	14¾	12½	10½	8¾
38	15	12½	10¾	8¾
39	15¼	12¾	10¾	9
40	15½	13	10¾	9

N.B.—The size of Orlop Beams to be the mean of the sizes here prescribed.

Lloyd's Register of Shipping,
18th March, 1858.

The siding and moulding of all the Beams to be the same as those amidships, except those at the *after end* of the Ship, which may be reduced in proportion to their diminished length. When the size of the Beams is increased, the dimensions are to be increased.—See Rule, Sec. 40.

MEM.—When Spruce or Yellow Pine is used for Beams the dimensions are to be increased.—See Rule, Sec. 40.

TABLE D.

SIZES OF BOLTS, PINTLES OF RUDDER, AND TREENAILS.

Section 46.

TONNAGE .....Not exceeding Tons	50	100	150	200	250	300	350	400	450	500	700	900	1350
Heel-Knee, Stemson, and Deadwood Bolts .....Inches	$\frac{7}{8}$	$\frac{15}{16}$	1	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{5}{16}$	$1\frac{3}{8}$	$1\frac{1}{2}$
Bolts in Sister Keelsons, Scarphs of Keel,* Arms of Breast Hooks, Pointers, Crutches, Riders, Hanging and Lodging Knees to Hold or Lower Deck Beams (except in and out Throat Bolts of Hanging Knees, which must be larger), also in and out Bolts of Shelf, Clamp, and Waterway of Hold or Lower Deck Beams, and the in and out Throat Bolts of Upper Deck Hanging Knees.	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	$\frac{15}{16}$	1	$1\frac{1}{8}$	$\frac{13}{16}$	$1\frac{1}{4}$
Keelson Bolts (one through Keel at each Floor), Throats of Transoms, Throats of Breasthooks, and Throats of Hanging Knees to Hold or Lower Deck Beams	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	1	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$1\frac{3}{8}$
Bilge, Limber Strake, and Through Butt Bolts	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	1
Other Butt Bolts.....	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$
In and out Bolts of Upper Deck Waterway, Shelf and Clamp, also Arms of Hanging and Lodging Knees, except in and out Throat Bolts of Hanging Knees, which must be larger.)	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{8}$
Pintles of Rudder {The Braces of which must extend so as to receive not less than Two Bolts on the Planking on each side.	$1\frac{7}{8}$	2	2	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	3	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{1}{2}$
Hardwood Treenails	1	1	1	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{1}{2}$

* NUMBER OF BOLTS IN SCARPHS OF KEEL:—

In Ships of 150 Tons and under 6 Bolts

" above 150 Tons and under 500 Tons 7 do.

" 500 Tons and above 8 do.

N.B.—Bolts to be through and clenched, as prescribed in Section 46.

TABLE E.

NUMBER OF HANGING KNEES

Section 41.

Tons.	To Hold Beams. PAIRS.	To Upper Deck Beams. PAIRS.
150	—	4
200	4	6
250	5	7
300	6	8
350	7	9
400	8	10
450	8	11
500	9	12
550	9	13
600	10	14
650	10	15
700	11	16
750	11	17
800	12	18
900	13	20
1000	14	22
1100	15	24
1350	17	26

TABLE F.

MINIMUM DIMENSIONS OF IRON KNEES AND KNEE RIDERS FOR BRITISH NORTH AMERICAN BUILT SHIPS AND FIR SHIPS.—Section 62.

TONNAGE .....Tons	150	200	250	300	350	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
Number of Hanging Knees to Hold or Lower Deck Beams .....Pairs	3	4	6	8	9	Upwards, one Knee Rider to every Beam, or Knees and Riders as per Section 62																				
Number of Hanging Knees to Upper and Middle Deck Beams .....Pairs	4	6	7	8	9	10	11	12	13	14	15	16	17	18	Upwards, one to every Beam											
Breadth of Knees and Riders to Hold or Lower Deck Beams .....Inches	3	3	3	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Breadth of Upper Deck Knees, where there are two Decks, and of Middle Deck Knees, where there are three Decks*.....Inches	3	3	3	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$
Thickness of Riders at the joints or butts of the Timbers .....Inches	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$
Thickness of Knees to Lower Deck or Hold Beams and Knee Riders at the Angle of the Throat .....Inches	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Thickness of Knees to Lower Deck or Hold Beams and Knee Riders at the Throat Bolts.....Inches	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$
Thickness of Knees to Upper or Middle Deck at the Throat Bolts *Inches	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Thickness of Hanging Knees (not Riders) at the ends .....Inches	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Length of Beam Arms of Knees and Knee Riders for Lower Deck or Hold Beams† ...	ft. 2 in. 6	ft. 2 in. 6	ft. 2 in. 9	ft. 2 in. 9	ft. 3 in. 0	ft. 3 in. 0	ft. 3 in. 3	ft. 3 in. 3	ft. 3 in. 3	ft. 3 in. 6	ft. 3 in. 6	ft. 3 in. 6	ft. 3 in. 9	ft. 3 in. 9	ft. 3 in. 9	ft. 3 in. 9	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0	ft. 4 in. 0

NOTE.—The Bolts in all Iron Riders in Hold, to be not more than twenty-one inches apart on the average.

Standards upon the Beams of such Ships are not admitted as substitutes for Hanging Knees below them.

For sizes of Bolts, see Table D.

* Breadth and thickness of Knees for Upper Deck, where there are Three Decks, may be one sixth less.

† Beam Arms of Upper and Middle Deck Knees, may be three inches shorter than those of the Lower Deck.

Side Arms of Hanging Knees not to be less in length, than one and a half the length of their Beam Arms.

Beam Arms of Knees and Knee Riders, which are 3ft. 6in. in length, to have not less than Four Bolts, and shorter than that length, to have not less than Three Bolts.

Side Arms of all Hanging Knees to have at least One Bolt more than in the Beam Arms.

100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700	5800	5900	6000	6100	6200	6300	6400	6500	6600	6700	6800	6900	7000	7100	7200	7300	7400	7500	7600	7700	7800	7900	8000	8100	8200	8300	8400	8500	8600	8700	8800	8900	9000	9100	9200	9300	9400	9500	9600	9700	9800	9900	10000	10100	10200	10300	10400	10500	10600	10700	10800	10900	11000	11100	11200	11300	11400	11500	11600	11700	11800	11900	12000	12100	12200	12300	12400	12500	12600	12700	12800	12900	13000	13100	13200	13300	13400	13500	13600	13700	13800	13900	14000	14100	14200	14300	14400	14500	14600	14700	14800	14900	15000	15100	15200	15300	15400	15500	15600	15700	15800	15900	16000	16100	16200	16300	16400	16500	16600	16700	16800	16900	17000	17100	17200	17300	17400	17500	17600	17700	17800	17900	18000	18100	18200	18300	18400	18500	18600	18700	18800	18900	19000	19100	19200	19300	19400	19500	19600	19700	19800	19900	20000	20100	20200	20300	20400	20500	20600	20700	20800	20900	21000	21100	21200	21300	21400	21500	21600	21700	21800	21900	22000	22100	22200	22300	22400	22500	22600	22700	22800	22900	23000	23100	23200	23300	23400	23500	23600	23700	23800	23900	24000	24100	24200	24300	24400	24500	24600	24700	24800	24900	25000	25100	25200	25300	25400	25500	25600	25700	25800	25900	26000	26100	26200	26300	26400	26500	26600	26700	26800	26900	27000	27100	27200	27300	27400	27500	27600	27700	27800	27900	28000	28100	28200	28300	28400	28500	28600	28700	28800	28900	29000	29100	29200	29300	29400	29500	29600	29700	29800	29900	30000	30100	30200	30300	30400	30500	30600	30700	30800	30900	31000	31100	31200	31300	31400	31500	31600	31700	31800	31900	32000	32100	32200	32300	32400	32500	32600	32700	32800	32900	33000	33100	33200	33300	33400	33500	33600	33700	33800	33900	34000	34100	34200	34300	34400	34500	34600	34700	34800	34900	35000	35100	35200	35300	35400	35500	35600	35700	35800	35900	36000	36100	36200	36300	36400	36500	36600	36700	36800	36900	37000	37100	37200	37300	37400	37500	37600	37700	37800	37900	38000	38100	38200	38300	38400	38500	38600	38700	38800	38900	39000	39100	39200	39300	39400	39500	39600	39700	39800	39900	40000	40100	40200	40300	40400	40500	40600	40700	40800	40900	41000	41100	41200	41300	41400	41500	41600	41700	41800	41900	42000	42100	42200	42300	42400	42500	42600	42700	42800	42900	43000	43100	43200	43300	43400	43500	43600	43700	43800	43900	44000	44100	44200	44300	44400	44500	44600	44700	44800	44900	45000	45100	45200	45300	45400	45500	45600	45700	45800	45900	46000	46100	46200	46300	46400	46500	46600	46700	46800	46900	47000	47100	47200	47300	47400	47500	47600	47700	47800	47900	48000	48100	48200	48300	48400	48500	48600	48700	48800	48900	49000	49100	49200	49300	49400	49500	49600	49700	49800	49900	50000	50100	50200	50300	50400	50500	50600	50700	50800	50900	51000	51100	51200	51300	51400	51500	51600	51700	51800	51900	52000	52100	52200	52300	52400	52500	52600	52700	52800	52900	53000	53100	53200	53300	53400	53500	53600	53700	53800	53900	54000	54100	54200	54300	54400	54500	54600	54700	54800	54900	55000	55100	55200	55300	55400	55500	55600	55700	55800	55900	56000	56100	56200	56300	56400	56500	56600	56700	56800	56900	57000	57100	57200	57300	57400	57500	57600	57700	57800	57900	58000	58100	58200	58300	58400	58500	58600	58700	58800	58900	59000	59100	59200	59300	59400	59500	59600	59700	59800	59900	60000	60100	60200	60300	60400	60500	60600	60700	60800	60900	61000	61100	61200	61300	61400	61500	61600	61700	61800	61900	62000	62100	62200	62300	62400	62500	62600	62700	62800	62900	63000	63100	63200	63300	63400	63500	63600	63700	63800	63900	64000	64100	64200	64300	64400	64500	64600	64700	64800	64900	65000	65100	65200	65300	65400	65500	65600	65700	65800	65900	66000	66100	66200	66300	66400	66500	66600	66700	66800	66900	67000	67100	67200	67300	67400	67500	67600	67700	67800	67900	68000	68100	68200	68300	68400	68500	68600	68700	68800	68900	69000	69100	69200	69300	69400	69500	69600	69700	69800	69900	70000	70100	70200	70300	70400	70500	70600	70700	70800	70900	71000	71100	71200	71300	71400	71500	71600	71700	71800	71900	72000	72100	72200	72300	72400	72500	72600	72700	72800	72900	73000	73100	73200	73300	73400	73500	73600	73700	73800	73900	74000	74100	74200	74300	74400	74500	74600	74700	74800	74900	75000	75100	75200	75300	75400	75500	75600	75700	75800	75900	76000	76100	76200	76300	76400	76500	76600	76700	76800	76900	77000	77100	77200	77300	77400	77500	77600	77700	77800	77900	78000	78100	78200	78300	78400	78500	78600	78700	78800	78900	79000	79100	79200	79300	79400	79500	79600	79700	79800	79900	80000	80100	80200	80300	80400	80500	80600	80700	80800	80900	81000	81100	81200	81300	81400	81500	81600	81700	81800	81900	82000	82100	82200	82300	82400	82500	82600	82700	82800	82900	83000	83100	83200	83300	83400	83500	83600	83700	83800	83900	84000	84100	84200	84300	84400	84500	84600	84700	84800	84900	85000	85100	85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RULES FOR THE BUILDING OF SEA-GOING IRON SHIPS, OF ALL DESCRIPTIONS, WHETHER SAILING OR NAVIGATED BY STEAM.

1. The whole of the iron to be of good malleable quality, and the manufacturer's name to be stated in the report of survey, the workmanship to be well executed, and to be submitted to the closest inspection before coating or painting, and any brittle or inferior article to be rejected. It is not intended to prevent the coating of the plates inside in the way of the frames.

2. The keel, stem, stern, and propeller posts are to be scarphed or welded together at discretion, and to be in size according to Table G; if scarphed, the length of scarphs to be regulated in the proportion of eight times the thickness given in the table for keels, and the stern posts, and after end of keel, for screw propelled vessels, to be double the thickness of, or twice the sectional area of, the adjoining length of keel (but the siding in no case to be less than the thickness of the keel), and to be tapered fair into the adjoining length of keel. Where the garboard strakes are thicker than required by the rules, and extend to the bottom of the keel, the thickness of the keel may be proportionably reduced, but such reduction not to exceed one-third of the requisitions of the Rule. Where the keel and keelsons are made of several thicknesses of plates, the plates that form the keel to be in thickness, taken together, the same as is required for a solid keel, as per Table G; and the butts of the several plates of which the keel is formed to be carefully shifted from each other, and from the butts of the garboard strakes, which in all cases must also be shifted, so as not to be opposite each other.

3. The spacing and dimensions of the ribs or frames, to be as per Table G, and the ribs or frames in as great lengths as possible, and to be fitted close on to the upper edge of the keel, and in all cases to extend to the gunwale, and wherever butted, to have not less than four feet lengths of corresponding angle iron fitted back to back to cover and support the butts and receive the plating. And if welded together, the welds to be perfect, and the shifts not to be less than four feet.

floor Plates.

4. The floor plates to be in thickness as per Table G, and to extend beyond the bilge keelsons, and to be in depth at middle line not less than one inch for every foot of the vessel's depth, measured from the top of upper or spar deck beams to top of floor plate, and not to be less in depth at the bilge keelsons than the moulding of the frame. A floor plate to be fitted and rivetted to every frame, and at the ends of the vessel the floor plates to be worked across the middle line so as to support and unite the sides of the vessel efficiently to each other.

Reversed Angle
Iron.

5. Reversed angle iron on frames to be in size as per Table G. All vessels, of whatever size, to have reversed angle iron rivetted to every frame and floor plate across the middle line to the height of upper part of bilges, and to have double reversed angle iron in way of all keelsons; and in addition all vessels of 300 tons and upwards to have reversed angle iron extended from bilges to the upper deck beam stringer on alternate frames, and vessels of 800 tons and upwards to have reversed angle iron extended on every frame from bilges to lower deck or hold beam stringer, if the vessel has two decks or tiers of beams, and to the height of middle deck beam stringer if the vessel has three decks or tiers of beams; the rivets for securing the reversed angle iron to the frames and floor plates to be in diameter equal to those specified in the table for the outside plating, and not to exceed six times their own diameter apart.

Middle Line
Keelson.

6. The middle line keelsons,* if of single plate, to be of the same thickness as the floor plates, and if standing above the floor plates to be well fitted and rivetted to the same, and a reversed angle iron to be fitted on each side, both on the top and the bottom, extending all fore and aft, the lower angle irons to be secured to the double reversed angle irons on the top of floors. If box keelsons be adopted, the plating to be of the thickness as per Table G, and in either case to be two-thirds of the depth of floor plates.

If intercostal middle line keelsons be adopted, they are to be of the same thickness as the floor plates, and rivetted to vertical angle irons on all floor plates at each end, the plates to extend from upper edge of keel to above the upper edge of floor plates, sufficiently high to be rivetted between the double angle irons extending all fore and aft, of the dimensions given in the Table G, and the said double angle irons of keelson are to be rivetted to double angle irons on top of all floor plates.

* In all cases the Keelsons, and *where practicable*, the Shelfpieces and Stringers, are to be carried fore and aft, without being cut off at the Bulkheads, the latter being made watertight around them; and where such parts of the ship are necessarily separated, they are to be efficiently connected, to the satisfaction of the Surveyor.

7. The bilge keelsons to be fitted and secured in an efficient manner, Bilge Keelsons. extending all fore and aft, and placed at lower turn of bilges, according to the form of the bottom. In ships of 1000 tons and upwards, an intercostal keelson to be fitted on each side, fore and aft as far as practicable, about midway between the middle line keelson and the bilge keelson, with double angle iron rivetted on the top of floor plates. All vessels of 500 tons and upwards to have fitted between the bilge keelsons and the hold beams, at the upper part of the turn of bilge, strong angle irons, as stringers, extending all fore and aft, rivetted back to back to the reversed irons on the frames, the size of them not to be less than those used for the middle line keelson.

8. All plates to be well fitted and secured to the ribs and each other, the Plating. butts to be closely fitted, and to be united by lining pieces or strips of not less than the same thickness as the plates, and of sufficient breadth for rivetting, as described hereafter. No butts of outside plating to be nearer each other than one space of frames, nor to be nearer to a scarp of keel than that distance.

The space between the outside plating and the frames, to have solid filling pieces closely fitted in one length, of the same breadth as the frames.

9. In the outside plating, stringer plates upon beams, angle iron on stringer plates, and flat of deck of raised quarter-decks, a reduction of one-fifth from the thickness required by the Table G for such parts in the range of the upper deck in ships with two decks will be allowed. Reductions allowed in raised Quarter Decks, Poops, Forecastles &c.

In the outside plating, stringer plates upon beams, angle iron on stringer plates, and flat of deck of full poops and top gallant forecastles, a reduction of one-fourth from the thickness required by the Table G for such parts in the range of the upper deck in ships with two decks will be allowed, and for the beams of full poops and top gallant forecastles a reduction of one-fifth will be allowed. The united lengths of poop and forecandle not to exceed three-fifths of the entire length of the upper deck.

In the scantlings of beams, plating, flat of deck, stringer plates, and angle iron on stringers to upper (or spar deck) in vessels with three decks, viz., upper, middle, and lower deck, a reduction of one-sixth from the dimensions given for such parts in the range of upper deck in ships with two decks will be allowed.

10. For the spacing of beams the depth of hold is measured amidship from the top of the floor plates to the top of the upper deck beams in vessels with two decks, and to the top of the middle deck beams in vessels with three decks. Depth of Hold, for Space of Beams.

The beams to be of the dimensions as per Table G, and to be made of "bulb," or any other approved iron plates, with reversed angle iron rivetted

to the plates, the beams to be well and efficiently connected or rivetted to the corresponding frames at the sides of the vessel, with bracket ends or knee plates of thickness equal to the beams, and in length, as per Table G, also to the stringer plates, the beams of each deck to be over each other, and pillared where practicable.

Upper deck beams in vessels with one or two tiers of beams, and the upper (or spar deck) and middle deck beams in vessels with three tiers of beams, to be fastened to alternate frames.

Vessels of 12 feet and under 13 feet depth of hold, or where the gross register tonnage exceeds 200 tons, shall be required to have as many hold beams as may be practicable or convenient, fastened to, at least, every eighth frame.

Vessels of 13 feet depth and under 15 feet, to have hold beams fastened to every fourth frame.

Vessels of 15 feet depth and under 18 feet, to have hold or lower deck beams fastened to every second and fourth frame, alternately.

Vessels of 18 feet depth and under 23 feet, to have hold or lower deck beams fastened to every alternate frame.

All vessels having two decks, and exceeding 23 feet in depth to the upper side of upper deck beams, and in vessels with three decks, viz., upper (or spar), middle, and lower deck, and exceeding 23 feet in depth to upper side of middle deck beams, such vessels to have orlop beams fastened to every sixth frame.

Where a deviation from the foregoing Rules as applying to beams takes place in way of engine-rooms or hatchways, or where no deck is intended to be laid, and the above named spaces would materially interfere with the stowage of cargo, and where partial or entire bulkheads with horizontal shelves and stringers between them, or larger beams are substituted for ordinary beams in wider spaces, a sketch with all particulars must be submitted, through the resident surveyor, for the Committee's consideration. The middle deck to be a perfect deck laid and caulked.

Rivets and Riveting.

11. The rivets to be of the best quality, and to be in diameter as per Table G; the rivet holes to be regularly and equally spaced and carefully punched opposite each other in the laps and lining pieces or strips, to be countersunk all through the outer plating; the rivets not to be nearer to the butts or edges of the plating, lining pieces to butts, or of any angle iron, than a space not less than their own diameter, and not to be further apart from centre to centre than four times their diameter, or nearer than three times

their diameter, and to be spaced through the frames and outside plating a distance equal to eight times their diameter apart. When rivetted up they are completely to fill the holes, and their points or outer ends are to be round or convex, and not to be below the surface of the plating through which they are rivetted. In vessels intended for the 12 years' grade, of *700 tons and upwards*, all edges or horizontal joints of outside plating to be double rivetted: and in vessels of the 12 years' grade *under 700 tons*, and in *all vessels* of the 9 years' grade, all edges or horizontal joints of outside plating to be double rivetted from the keel to the height of upper part of bilges, all fore and aft. The stem, stern post, keel, edges of garboard strakes and sheer strakes, and butts of outside plating, and butts of floor plates, breasthooks, transoms, and plates of beams, also butts of keelsons, stringers, shelf-plates, and all other longitudinal ties, to be double rivetted in all vessels. The overlaps of plating, where double rivetting is required, not to be less in breadth than five times the diameter of the rivets; and where single rivetting is admitted, the overlaps to be not less in breadth than three times the diameter of the rivets. If double rivetting be adopted where single rivetting is allowed by the Rules, the diameter of the rivets may be reduced one-sixteenth of an inch below that prescribed by the Rules, provided that in no case the diameter be reduced below five-eighths of an inch. The butts and edges of outside plating to be truly fitted, carefully caulked, and made water-tight.

12. In addition to the engine room bulkheads of steamers, all vessels Bulkheads. to have two water-tight bulkheads, built at a reasonable distance from the ends, to extend from the keel, and outside plating to the upper deck in vessels with two decks, and to the middle deck in vessels with three decks (otherwise called "tonnage deck"); but it shall not be required to extend the aftermost bulkhead to this height if it be continued above the load water line, and be connected to a water-tight platform or deck of iron extending from its upper part entirely round the after part of the vessel, thus enclosing the lower after body in a water-tight tank. If a screw shaft passes through a bulkhead, it is to be made water-tight at the bulkhead. All plating of bulkheads to be of the thickness prescribed in Table G, and to be closely fitted between two frames or ribs at each side of the vessel, and strongly rivetted through them, or if attached only to one frame, then to have brackets or knee plates rivetted horizontally against the side plating of the vessel and to the bulkheads, fore and aft alternately, near the middle of the outside plates, to be strongly rivetted thereto. Lining pieces between

these frames and outside plating in way of bulkheads are to be plates extending in one piece from the foreside of the frame afore the bulkhead frames to the aftside of the frame abaft the bulkhead frames; also the bulkheads to be supported vertically by angle irons of the dimensions given in the Table G, which are not to exceed two feet six inches apart, the whole to be efficiently connected and rivetted together and to the corresponding floors, beams of the several decks, and the frames or ribs. The whole of the bulkheads to be caulked and made thoroughly water-tight.

Ceiling.

13. The wood ceiling or lining of all vessels from 100 to 3000 tons to be from $1\frac{1}{2}$ inches to 3 inches in thickness, in proportion to the tonnage, and to be so fastened to the reversed angle irons or frames that it may be easily removed for survey and painting.

Decks, Waterways, and Plank-sheers.

14. The waterways and planksheers, if of wood, not to be inferior in quality of material to that which is prescribed in Table A for vessels built of wood of the same grade. The flat of upper deck to be fastened by screw bolts put through from the upper side, and to have nuts at the under side of the angle iron of the beams; where the planks exceed six inches in width, two bolts in each plank in every beam, one of which may be a short screw bolt. The waterways to be fastened with screw bolts with nuts at under side of stringer plates.

Stringer plates and tie plates.

15. All vessels to have stringer plates upon the ends of each tier of beams, to be not less in breadth and thickness than the dimensions given in Table G, the said stringer plates to be fitted home and rivetted to the outside plating at all upper decks, and at the middle deck in vessels having three decks, with angle iron of the dimensions given in the Table; and the stringer plates of the middle deck of ships with three decks to have an additional angle iron extending all fore and aft inside of the frames, and rivetted to the reverse angle iron on the frames. All vessels to have upon each tier of beams a tie-plate* each side the hatchways of the dimensions given in Table G, extending all fore and aft throughout, and well rivetted to the upper sides of all the beams, deck hooks, and transoms. Also to have plates, where practicable, of the same dimensions, extending diagonally from side to side, rivetted to the upper side of beams and stringer plates.

Rudder.

16. The main piece of rudder to be made of the best hammered iron, and so arranged as to ship and unship, where practicable, without docking, and the main piece to be in size, according to the Table G.

* Upon hold beams where no deck is intended to be laid, or where such tie-plates would materially interrupt stowage of cargo, an angle iron, of the dimensions given in the Table G for "Angle Iron on Beam Stringers," will be admitted in lieu thereof, placed at the middle line, extending all fore and aft throughout where practicable, and well rivetted to all beams, deck hooks, and transoms.

17. Vessels intended for either the 12, 9, or 6 years' grade to be surveyed at least five times, in the following order, viz :— Surveys.

On the several parts of the frame, when in place, and before the plating is wrought.

On the plating during the progress of rivetting.

When the beams are in and fastened, and before the decks are laid.

Again when the ship is complete, and before the plating is finally coated.

And lastly, after the ship is launched.

All vessels to be subject to occasional or annual survey when practicable, and every third year to be specially surveyed in dry dock or laid on blocks, with both surfaces of outside plating exposed; and whenever the engines or the boilers of iron steam ships are taken out, the vessel shall be submitted to a particular and special survey.

CONTINUATION OF IRON SHIPS TO THE CHARACTER A.

18. If, on the termination of the period of original designation, or if at any subsequent period, not exceeding one-half the number of years assigned originally, or on restoration, an owner shall wish to have his ship remain or be replaced on the letter A, he is to send a written notice thereof to the Secretary, and the Committee shall then direct a special survey, as follows, to be held by not less than two competent persons, to be appointed by the Committee, one of them to be a surveyor the exclusive servant of the Society:

SURVEY.

The vessel to be placed on high blocks, in a dry dock, or upon ways, and proper stages to be made, so that the rivets and plates of keel, and flat of bottom, may be thoroughly examined; the whole of the ceiling or lining inside to be entirely removed; coal bunkers of steam vessels to be cleared, so as to expose the whole of the frames, stringers, hooks, floor plates, keelsons, engine and boiler bearers, ends of beams, water-tight bulkheads, rivets, and inner surface of the plating, to view; the hold to be cleared; all oxidation to be removed by being cut or beaten off the several parts above-named, also from the outside plating, rivets, keel, stem, sternpost, and rudder, so as to completely lay bare all the surfaces of iron; the planksheers and waterways, if of wood, to be scraped bright: and when the vessel is so prepared, the Surveyors are to examine and report the condition and thickness of all the parts of iron above-named, also the condition of the planksheers, waterways, flat of decks and their fastenings; and upon the owner consenting to remove and replace with proper materials, equal in substance

and quality to the original construction, such parts as may be found defective, or less than three-fourths of the required substance by Rule, such vessel, upon the repairs and efficiency being reported to the Committee, may be continued on the letter A for a term of years not exceeding one-half the number of years assigned originally, or on restoration, subject to occasional or annual survey when practicable. The period of continuation will, upon all occasions, commence from the time the ship may have gone off the letter A, without regard to the date when the survey for this purpose may be held.

RESTORATION OF IRON SHIPS TO THE CHARACTER A.

19. If, *at any age of a vessel*, an owner be desirous to have his ship restored, such restoration, on his application to the Committee, and consenting to the special survey hereinafter described, to be held by two Surveyors, one of whom shall be an exclusive servant of the Society, and performing the repairs thereby found requisite, will be granted for a period not exceeding two-thirds of the time originally assigned, the same to be calculated from the date of such repairs.

Survey and Requisites for Restoration.

The vessel to be placed on high blocks, in a dry dock, or upon ways, and proper stages to be made, so that the rivets and plates of keel, and flat of bottom, may be thoroughly examined; the whole of the ceiling or lining inside to be entirely removed; coal bunkers of steam vessels to be cleared, the boilers to be taken out and also the engines (unless it shall be shown by previous survey that the removal is unnecessary), so as to expose the whole of the frames, stringers, hooks, floor plates, keelsons, engine and boiler bearers, ends of beams, water-tight bulkheads, rivets, and inner surface of the plating, to view; the hold to be cleared; all oxidation to be removed by being cut or beaten off the several parts above-named, also from the outside plating, rivets, keel, stem, sternpost, and rudder, so as to completely lay bare all the surfaces of iron; the planksheers and waterways, if of wood, to be entirely removed, and also the flat of upper deck, except under special circumstances, to be sanctioned by the Committee in each case: and when the vessel is so prepared, the Surveyors are to examine and report the condition and thickness of all the parts of iron above-named, also the condition of the beams and their fastenings; and upon the owner consenting to remove such parts as may be found defective, or objected to, or less in thickness than hereinafter admitted for repairing such vessel, and replace them with proper materials equal in quality and substance to that required in the Table G for

the nine years' grade in those originally classed 12 A, and equal in quality and substance to that required in the Table G for the six years' grade in vessels originally classed 9 A or 6 A, such vessel, upon the repairs and efficiency being reported to the Committee, may be restored to the letter A, for a term of years not exceeding two-thirds the number of years assigned originally, subject to occasional survey.

Iron ships, which have been restored under the foregoing rule, shall be entitled to continuation thereon, subject to the same conditions of survey and examination as are prescribed for ships proposed to be continued at the expiration of the period first assigned to them; but in like manner, the term of such extended continuance to be limited to a period not exceeding one-half the number of years for which the ships may respectively have been restored, without reference to the period originally assigned to them.

20. On the expiration of the terms assigned to ships classed A, they will be liable to lapse (like ships built of wood).

21. One year will be added to the character of all ships of the A class built under a roof which shall project at each end beyond the length, and on each side beyond the breadth, a quantity equal to one-half the breadth of the vessel.

22. Vessels not surveyed while building, will be classed A from year to year only, but for a period not exceeding Six Years.

IRON SHIPS ALREADY CLASSED A 1.

Iron ships built prior to the promulgation of the Rules will be allowed to remain in the Register book classed A 1 from year to year, *subject to annual survey*, until the expiration of Six Years from their date of build, and then be examined to determine the period to which they may be entitled under the rules; and if, on such examination, it shall be found the ships are entitled to the 9 or 12 years' grade, it will be in the option of the owners either to adopt such period respectively, or continue the vessel A 1 from year to year, as above, until the expiration of the extended period; but if it shall be found that the term of years for which a vessel would have been entitled to remain on the A character has expired, she will be classed \mathcal{A} E, if entitled thereto, unless specially surveyed for continuation or for restoration.

The Rules for the building of Iron Ships having been now for some time before the public, and the principles upon which they are framed having

been found generally to work satisfactorily, and the Committee having very carefully revised the several regulations, especially in respect to the thickness of the plating and the extension of double rivetting, beg respectfully to urge upon the builders of iron ships the necessity of a close approximation to the Rules, and a conformity to the Table of Dimensions, so as to justify the Committee in granting the character A for the respective periods for which the ships are built.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

*No. 2, White Lion Court, Cornhill.
London, 21st May, 1857.*

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IRON SHIPS.—TABLE OF MINIMUM DIMENSIONS OF FRAMES, PLATING, RIVETS, KEELS, KEELSONS, STEMS, STERN POSTS, FLOOR PLATES, BEAMS, BULKHEADS, STRINGERS, &c.

Gross Tonnage.	Keel, Stem, and Stern Post for all Grades.*	Distance of Frames or Ribs from Moulding edge all fore and aft for all Grades.	FRAMES or RIBS. Dimensions of Angle Iron for all Grades.	Dimensions of Reversed Angle Iron on Frames and Bulkheads for all Grades.	THICKNESS OF PLATES.†									BULKHEADS Thickness of Plates throughout for all Grades	Dimensions of Angle Iron on Beam Stringers or Keelsons for all Grades.	RUDDER for all Grades.		Thickness of Wood Flat of Upper Deck.	Gross Tonnage.
					Garboard Strakes.			From the Garboard to the upper part of Bilge, and the Sheerstrakes.			From Bilge to Sheerstrakes, thickness of Beams, Stringer Plates upon Beam Ends, Hooks, Crutches, Floor Plates, and Keelsons.								
					Years.			Years.			Years.								
					12	9	6	12	9	6	12	9	6						
100	Inches. 5½×1½	inches. 18	inches. 6/16×2½×2½	inches. 5/16×2¼×2¼	inches. 8/16	inches. 7/16	inches. 6/16	inches. 7/16	inches. 6/16	inches. 5/16	inches. 6/16	inches. 5/16	inches. 5/16	inches. 4/16	inches. 6/16×2½×2½	inches. 2½	inches. 2	inches. 2½	100
200	6×2	18	6/16×3×2½	5/16×2¼×2¼	9/16	8/16	7/16	8/16	7/16	6/16	7/16	6/16	5/16	4/16	6/16×3×2½	3	2	2½	200
300	6¼×2¼	18	6/16×3¼×2¾	5/16×2½×2½	10/16	9/16	8/16	9/16	8/16	7/16	8/16	7/16	6/16	5/16	6/16×3½×2¾	3¼	2¼	3	300
400	6½×2½	18	7/16×3½×2¾	6/16×2¾×2½	10/16	9/16	8/16	9/16	8/16	7/16	8/16	7/16	6/16	5/16	6/16×4×3	3½	2½	3	400
500	6¾×2½	18	7/16×3¾×2¾	6/16×3×2½	11/16	10/16	9/16	10/16	9/16	8/16	9/16	8/16	7/16	6/16	7/16×4¼×3¼	3¾	2¾	3½	500
600	7×2¾	18	7/16×4×3	6/16×3×2¾	11/16	10/16	9/16	10/16	9/16	8/16	9/16	8/16	7/16	6/16	7/16×4½×3½	4¼	2¾	3½	600
700	7¼×2¾	18	8/16×4¼×3	7/16×3×2¾	12/16	11/16	10/16	11/16	10/16	9/16	10/16	9/16	8/16	6/16	8/16×4¾×3¾	4½	3	3½	700
800	7½×3	18	8/16×4½×3	7/16×3×3	12/16	11/16	10/16	11/16	10/16	9/16	10/16	9/16	8/16	6/16	8/16×5×4	4½	3	3½	800
900	8×3	18	8/16×4¾×3	7/16×3¼×3	13/16	12/16	11/16	12/16	11/16	10/16	11/16	10/16	9/16	7/16	9/16×5×4¼	4¾	3	3½	900
1000	8½×3	18	9/16×5×3	8/16×3½×3	14/16	12/16	11/16	12/16	11/16	10/16	11/16	10/16	9/16	7/16	9/16×5×4½	5	3	4	1000
1200	9×3	18	9/16×5×3½	8/16×3½×3	15/16	13/16	12/16	13/16	12/16	11/16	11/16	10/16	9/16	7/16	9/16×5½×4½	5	3¼	4	1200
1500	10×3	18	10/16×5½×3½	9/16×4×3½	16/16	14/16	13/16	14/16	13/16	12/16	12/16	11/16	10/16	8/16	9/16×6×5	5½	3½	4	1500
2000	12×3	18	10/16×6×4	9/16×4½×3½	17/16	15/16	14/16	15/16	14/16	13/16	13/16	12/16	11/16	8/16	10/16×6½×5½	6	3¾	4	2000
2500	12×3¼	18	11/16×6¼×4	10/16×4½×3½	17/16	16/16	15/16	16/16	15/16	14/16	14/16	13/16	12/16	8/16	10/16×6½×5½	6½	4	4	2500
3000	12×3½	18	11/16×6½×4	10/16×4½×3½	17/16	16/16	15/16	16/16	15/16	14/16	14/16	13/16	12/16	9/16	10/16×6½×5½	6¾	4½	4	3000

RIVETS. Diameter of Rivets required for Thickness of Plates - - -	$\frac{5}{8}$ of an Inch.			$\frac{3}{4}$ of an Inch.			$\frac{7}{8}$ of an Inch.			1 Inch.			Rivets to be $\frac{1}{4}$ of an inch larger in diameter in the stem, stern-post, and keel.
	$\frac{5}{16}$	$\frac{6}{16}$	$\frac{7}{16}$	$\frac{8}{16}$	$\frac{9}{16}$	$\frac{10}{16}$	$\frac{11}{16}$	$\frac{12}{16}$	$\frac{13}{16}$	$\frac{14}{16}$	$\frac{15}{16}$	$\frac{16}{16}$	

* When Hollow Plate Keels are adopted, their thickness should not be less than one and a half that of the Garboard Strake. For Keels of other Forms, see Sec. 2.

† Plating not to be reduced in thickness forward or aft, except in the sheerstrake and strake next below it, which may be reduced $\frac{1}{16}$ of an inch in Vessels of 1000 Tons and under, and $\frac{1}{8}$ of an inch in Vessels above 1000 Tons, for a distance not exceeding one quarter of the length of the Vessel from each end.

‡ All Beam Plates to be in depth one quarter of an inch for every foot in length of the Midship Beam; to have double Angle Iron upon upper edge, Siding & Moulding together of each to be not less than three-fourths the depth of Beam Plate, and to be in thickness $\frac{1}{8}$ of an inch for every inch of the two sides of the Angle Iron.

§ Stringer Plates upon ends of Beams not to be less in breadth than three times the depth of Beams, and to be of the thickness given in the Table, the said Stringer Plates to be fitted home and rivetted to the outside plating at all Upper Decks, and at the Middle Deck in Vessels having three decks, with Angle Iron of the dimensions given in the Table above. The Plates ranging all fore and aft upon Beams on each side of Hatchways, or from side to side diagonally, to be half the width, and of the same thickness as the Stringer Plates upon ends of Beams. Each arm of Knee Plates not to be less in length than twice and half the depth of the Beams.

|| Depth of Floor Plates at the middle line not to be less than one inch for every foot of the Vessel's depth, measured amidship from the top of the Floor Plates to the top of the Upper or Spar Deck Beams, to extend beyond the Bilge Keelsons, and not to be less in depth at the Bilge Keelsons than the Moulding of the Frames.

The Rivets to be of the best quality, and to be in diameter as per Table; the rivet holes to be regularly and equally spaced and carefully punched opposite each other in the laps and lining pieces, or strips; to be countersunk all through the Outer Plating, the rivets not to be nearer to the Butts or edges of the Plating, Lining Pieces or Butts, or any Angle Iron, than a space not less than their own diameter, and not to be further apart from centre to centre than four times their diameter, or nearer than three times their diameter, and to be spaced through the Frames and outside Plating a distance equal to eight times their diameter apart. When rivetted up, they are completely to fill the holes, and their points, or outer ends, are to be round or convex, and not to be below the surface of the Plating through which they are rivetted. All edges or horizontal joints of outside plating to be double rivetted in vessels intended for the 12 years' grade, of 700 Tons and upwards, and from Keel to the height of upper part of Bilges all fore and aft in vessels intended for the 9 years' grade, and for the 12 years' grade under 700 Tons. The Stem, Stern Post, Keel, Edges of Garboard Strakes and Sheerstrakes, and Butts of outside Plating, and Butts of Floor Plates, Breasthooks, Transoms, and Plates of Beams; also butts of Keelsons, Stringers, Shelf Plates, and all other longitudinal ties, to be double rivetted in all Vessels. The overlaps of Plating where double rivetting is required, to be not less in breadth than five times the diameter of the rivets, and where single rivetting is admitted, the overlaps to be not less in breadth than three times the diameter of the rivets. If double rivetting be adopted where single rivetting is allowed by the Rules, the diameter of the rivets may be reduced $\frac{1}{8}$ of an inch below that prescribed by the Rules, provided that in no case the diameter be reduced below $\frac{5}{8}$ of an inch.

MEM.—Ships built under survey, in which the thickness of the plating is equal to the requirements of the Rules, but which, from partial deficiencies, may not appear to be in all respects entitled to the full terms of years contemplated by the above Table, will have one year, at the discretion of the Committee, abated from the period to which they would otherwise be entitled. 31st December, 1857.

No. 1—A TABLE exhibiting the different Descriptions of TIMBER, of good quality, adapted to the several Terms of Years appointed by the Board of Trade.

PARTS OF THE FRAME OF A VESSEL.	TWELVE YEARS.	TEN YEARS.	NINE YEARS.	EIGHT YEARS.
FLOORS	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture, Cuba Sabicu, Pencil Cedar, Adriatic, Spanish and French Oak.	The same as in the preceding Class, and admit † Red Cedar, Angelly and Venatica Other Continental White Oak Spanish Chesnut, Stringy Bark and Blue Gum.	The same as in the preceding Class, and admit North American White Oak American Sweet Chesnut
1st FUTTOCKS }	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture, Cuba Sabicu, Pencil Cedar, Adriatic, Spanish, and French Oak.	The same as in the preceding Class, and admit † Red Cedar, Angelly and Venatica Other Continental White Oak Spanish Chesnut, Stringy Bark and Blue Gum.	The same as in the preceding Class, and admit † North American White Oak American Sweet Chesnut
2d FUTTOCKS.. }	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the preceding Class, and admit Adriatic, Spanish, & French Oak † Red Cedar, Angelly and Venatica.	The same as in the preceding Class.
3d FUTTOCKS.. and TOP TIMBERS }	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the preceding Class, and admit Adriatic, Spanish, & French Oak † Red Cedar, Angelly and Venatica.	The same as in the preceding Class.
MAIN and RIDER KEELSONS.... }	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture—Cuba Sabicu Pencil & Red Cedar Angelly & Venatica Adriatic, Spanish, & French Oak.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.	The same as in the preceding Class, and admit North American White Oak American Sweet Chesnut Larch Hackmatack Tamarac Juniper.
STEM and STERN POSTS }	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the preceding Class, and admit Adriatic, Spanish, & French Oak † Red Cedar, Angelly and Venatica.	The same as in the preceding Class.
TRANSOMS.... KNIGHTHEADS HAWSE TIMBERS..... APRON and DEADWOOD .. }	English } Oak African } Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the preceding class, and admit Adriatic, Spanish, & French Oak † Red Cedar, Angelly and Venatica.	The same as in the preceding Class.
BEAMS and HOOKS	English, African, and Live Oak—East-India Teak—Morung Saul—Greenheart—Morra—Iron Bark—Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the preceding Class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the preceding Class.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.
KNEES	English, African, and Live Oak—East-India Teak—Morung Saul—Greenheart—Morra—Iron Bark—Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the preceding class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the preceding Class.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.

* This Table applies to the Deadwood so far as regards the material to be used from the height of two feet above the rabbet of the keel.
† Live Oak and Red Cedar admitted alternately in timbers of the frame for 10 A.
‡ If the First Futtocks run up above the Light Watermark, the use of Foreign White Oak is allowed for the 7 years' grade only.

MEM.—The word "English" includes Timber the growth of the United Kingdom.

Quality, to be used in the TIMBERING of SHIPS, as the same will be applicable for Ships to remain on the Character A.

SEVEN YEARS.	SIX YEARS.	FIVE YEARS.	FOUR YEARS.	PARTS OF THE FRAME OF A VESSEL.
The same as in the preceding Class, and admit Larch, Hackmatack, Tamarac—Juniper, Pitch Pine, Second-hand English or African Oak, or East-India Teak English Ash.	The same as in the preceding Class, and admit *Cowdie ¶American Rock Elm.	The same as in the preceding Class, and admit Baltic & Amer. Red Pine Foreign Ash Europ. & Amer. Grey Elm ¶Black Birch Spruce Fir ¶English Beech.	The same as in the preceding Class, and admit Hemlock.	FLOORS.
The same as in the preceding Class, and admit Larch—Hackmatack Tamarac—Juniper Pitch Pine Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit Cowdie English Ash American Rock Elm.	The same as in the preceding Class, and admit Baltic & Amer. Red Pine Foreign Ash European and American Grey Elm **Black Birch Spruce Fir.	The same as in the preceding Class, and admit English Beech Hemlock.	1st FUTTOCKS.
The same as in the preceding Class, and admit Other Continental White Oak, Spanish Chesnut Stringy Bark, Blue Gum North Amer. White Oak Amer. Sweet Chesnut Larch—Hackmatack Tamarac—Juniper Pitch Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak Cowdie.	The same as in the preceding Class, and admit Baltic and American Red Pine English Ash American Rock Elm.	The same as in the preceding Class, and admit Foreign Ash European and American Grey Elm Black Birch Spruce Fir Hemlock.	2d FUTTOCKS.
The same as in the preceding Class, and admit Other Continental White Oak, Span. Ches. Stringy Bark, Blue Gum, N. Amer. White Oak, Amer. Sweet Chesnut, Larch, Hackmatack, Tamarac, Juniper Pitch Pine, Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit English Ash American Rock Elm.	The same as in the preceding Class, and admit Foreign Ash European and American Grey Elm Black Birch Spruce Fir Yellow Pine. Hemlock.	3d FUTTOCKS and TOP TIMBERS.
The same as in the preceding Class, and admit Cowdie Baltic and American Red Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak American Rock Elm.	The same as in the preceding Class, and admit English Ash Foreign Ash.	The same as in the preceding Class, and admit European and American Grey Elm Black Birch Spruce Fir English Beech Yellow Pine.	MAIN and RIDER KEELSONS.
The same as in the preceding Class, and admit Other Continental W. Oak Span. Ches. Stringy Bark Blue Gum, N. Amer. W. Oak, Amer. Sweet Ches. Larch, Hackmatack, Tamarac, Juniper, P. Pine.	The same as in the preceding Class, and admit Cowdie.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak Baltic and American Red Pine American Rock Elm.	The same as in the preceding Class, and admit English Ash—Foreign Ash European and American Grey Elm Black Birch Spruce Fir Yellow Pine.	STEM and STERN POST.
The same as in the preceding Class, and admit Other Continental White Oak, Spanish Chesnut, Stringy Bark, Blue Gum N. Amer. W. Oak, Amer. Sweet Chesnut, Larch Hackmatack, Tamarac Juniper, Pitch Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak Cowdie.	The same as in the preceding Class, and admit Baltic and American Red Pine American Rock Elm.	The same as in the preceding Class, and admit English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir Yellow Pine.	TRANSOMS KNIGHTHEADS HAWSE TIMBERS APRON and *DEADWOOD.
The same as in the preceding Class, and admit North Amer. White Oak Amer. Sweet Chesnut Larch—Hackmatack Tamarac—Juniper Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit English Ash Foreign Ash American Rock Elm European and American Grey Elm.	The same as in the preceding Class, and admit Black Birch Spruce Fir Yellow Pine, Hemlock.	BEAMS and HOOKS
The same as in the preceding Class, and admit North Amer. White Oak Amer. Sweet Chesnut Larch—Hackmatack Tamarac—Juniper Cowdie Baltic & Amer. Red Pine Spruce Fir.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit English Ash Foreign Ash American Rock Elm European and American Grey Elm.	The same as in the preceding Class, and admit Black Birch Yellow Pine. Hemlock.	KNEES.

¶ Black Birch, Beech, American Rock Elm, and Cowdie allowed for FLOORS in Midships, to an extent not exceeding one-half the entire length of the keel in ships of the Seven Years' Grade.

** Black Birch allowed for First Futtocks amidships, to the same extent in Ships of the Six Years' Grade.

White Cedar allowed for Third Futtocks and Toppimbars in ships of the Seven Years' Grade.

No. 2.—A TABLE exhibiting the different Descriptions of TIMBER, of good
applicable to the several Terms of Years appointed

PARTS OF THE OUTSIDE OF A VESSEL.	TWELVE YEARS.	TEN YEARS.	NINE YEARS.	EIGHT YEARS.
KEEL to the 1st FUTTOCK HEADS.....	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, Iron Bark, Mahogany of hard texture, Cuba Sabicu, Pencil Cedar, Adriatic, Spanish, and French Oak, Red Cedar, Angelly and Venatica, other Continental White Oak, Spanish Chesnut, Stringy Bark and Blue Gum, North American White Oak, American Sweet Chesnut, Larch, Hackmatack, Tamarac, Juniper, Pitch Pine, § American Rock Elm, § European and Ameri- can Grey Elm, § English Beech.	The same as in the pre- ceding Class, and admit Cowdie English Ash Foreign Ash Black Birch.	The same as in the pre- ceding Class, and admit Baltic and American Red Pine.	The same as in the pre- ceding Class,
1st FUTTOCK HEADS to LIGHT WATER MARK	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, Iron Bark, Mahogany of hard texture, Cuba Sabicu, Pencil Cedar, Adriatic, Spanish, and French Oak, Red Cedar, Angelly and Venatica, other Continental White Oak, Spanish Chesnut, Stringy Bark and Blue Gum, Pitch Pine.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Larch Hackmatack Tamarac Juniper.	The same as in the pre- ceding Class, and admit Cowdie Baltic and American Red Pine.	The same as in the pre- ceding Class, and admit American Rock Elm European and American Grey Elm English Beech.
LIGHT WATER MARK to WALES	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra Iron Bark Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture—Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark, Blue Gum and Pitch Pine.	The same as in the pre- ceding Class, and admit N. American White Oak Amer. Sweet Chesnut Larch—Hackmatack Tamarac Juniper Cowdie Baltic & Amer. Red Pine.
WALES BLACKSTRAKES TOPSIDES..... and SHEERSTRAKES	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture Cuba Sabicu Pencil Cedar Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, and French Oak Pitch Pine.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark, and Blue Gum
UPPER DECK WATERWAYS SPIRKETTING and PLANKSHEERS.	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra—Iron Bark.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica Larch—Hackmatack Tamarac—Cuba Sabicu Juniper Pencil Cedar Pitch Pine Cowdie Baltic & Amer. Red Pine. Mahogany of hard texture	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class.

§ The use of Elm and Beech, in Ships above the EIGHT YEARS' grade, to be restricted to a height from the lower part of the main Keel, of one third of the internal depth of the Ship measured, in midships, from the top of the Limber Strake to the top of the Upper Deck Beams.

Quality, to be used in the OUTSIDE PLANKING of SHIPS, as the same will be for Ships to remain on the Character A.

SEVEN YEARS.	SIX YEARS.	FIVE YEARS.	FOUR YEARS.	PARTS OF THE OUTSIDE OF A VESSEL.
The same as in the preceding Class.	The same as in the preceding Class, and admit Spruce Fir Yellow Pine.	The same as in the preceding Class.	The same as in the preceding Class, and admit Hemlock.	KEEL to the 1st FUTTOCK HEADS.
The same as in the preceding Class, and admit English Ash Foreign Ash Black Birch.	The same as in the preceding Class.	The same as in the preceding Class, and admit Spruce Fir Yellow Pine.	The same as in the preceding Class, and admit Hemlock.	1st FUTTOCK HEADS to LIGHT WATER MARK.
The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm.	The same as in the preceding Class, and admit European and American Grey Elm Yellow Pine.	The same as in the preceding Class, and admit English Ash Foreign Ash Black Birch Spruce Fir English Beech. Hemlock.	LIGHT WATER MARK to WALES.
The same as in the preceding Class, and admit North Amer. White Oak American Sweet Chesnut Larch -Hackmatack Tamarac Juniper Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm Yellow Pine.	The same as in the preceding Class, and admit European and American Grey Elm Black Birch Spruce Fir Hemlock.	WALES BLACKSTRAKES TOPSIDES and SHEERSTRAKES
The same as in the preceding Class, and admit Oak American Sweet Chesnut.	The same as in the preceding Class.	The same as in the preceding Class, and admit Second-hand English or East-India Teak American Rock Elm ++Yellow Pine.	The same as in the preceding Class, and admit European and American Grey Elm Black Birch Spruce Fir Hemlock.	UPPER DECK WATERWAYS SPIRKETTING and PLANKSHEERS.

++ Yellow Pine allowed for Waterways of Upper Deck in Ships of the SEVEN YEARS' grade, if properly fastened, as prescribed in Table B, and provided the Beams are well secured, independently of the Waterways.
MEM.—The word "English," includes Timber the growth of the United Kingdom.

No. 3.—A TABLE exhibiting the different Descriptions of TIMBER, of good
applicable to the several Terms of Year

INSIDE PLANK.	TWELVE YEARS.	TEN YEARS.	NINE YEARS.	EIGHT YEARS.
LIMBER STRAKES and BILGE STRAKES.	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra Iron Bark Mahogany of hard texture Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Pitch Pine.	The same as in the pre- ceding Class.
CEILING, LOWER HOLD, and BETWEEN DECKS.	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra Iron Bark Mahogany of hard texture Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Pitch Pine.	The same as in the pre- ceding Class, and admit Larch Hackmatack Tamarac Juniper Cowdie Baltic and American Red Pine.
SHELF PIECES CLAMPS and LOWER DECK WATERWAY.	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra Iron Bark Mahogany of hard texture Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Pitch Pine.	The same as in the pre- ceding Class, and admit Larch Hackmatack Tamarac Juniper Cowdie Baltic and American Red Pine.
RUDDER and WINDLASS MAIN PIECES.	English } Oak African } Live } East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, and French Oak.	The same as in the pre- ceding Class.

The materials marked thus || under the head of "Rudders and Windlass" allowed in ships of 300 Tons and under only.

Quality, to be used in the INSIDE PLANKING of SHIPS, as the same will be for Ships to remain on the Character A.

SEVEN YEARS.	SIX YEARS.	FIVE YEARS.	FOUR YEARS.	INSIDE PLANK.
The same as in the preceding Class, and admit Larch Hackmatack Tamarac Juniper Cowdie Baltic and American Red Pine American Rock Elm.	The same as in the preceding Class.	The same as in the preceding Class, and admit Second-hand English or African Oak or East-India Teak English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir English Beech Yellow Pine.	The same as in the preceding Class, and admit Hemlock.	LIMBER STRAKES and BILGE STRAKES.
The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm.	The same as in the preceding Class, and admit Second-hand English or African Oak or East-India Teak English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir English Beech Yellow Pine.	The same as in the preceding Class, and admit Hemlock.	CEILING, LOWER HOLD, and BETWEEN DECKS.
The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm.	The same as in the preceding Class, and admit Second-hand English or African Oak or Teak and Yellow Pine.	The same as in the preceding Class, and admit English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir English Beech. Hemlock.	SHELF PIECES CLAMPS and LOWER DECK WATERWAY.
The same as in the preceding Class, and admit Other Continental White Oak, Spanish Chesnut Stringy Bark, Blue Gum North American White Oak and American Sweet Chesnut Larch, Hackmatack Tamarac, Juniper, Pitch Pine.	The same as in the preceding Class.	The same as in the preceding Classes, and admit Second-hand English or African Oak or East-India Teak Baltic and American Red Pine. English Ash.	The same as in the preceding Classes, and admit American Rock Elm Black Birch Spruce Fir English Beech.	RUDDER and WINDLASS MAIN PIECES.

MEM.—The word "English" includes Timber the growth of the United Kingdom.

No. — Survey held at ——— Date —— 18— on the —— Master ——
Tonnage { Old — Built at —— When built —— Launched ——
 { New — Owners —— Port belonging to —— Destined Voyage ——
By whom built —————
If Surveyed while building, Afloat, or in Dry Dock —————

Length aloft	Feet.	Inches.		Extreme Breadth outside	Feet.	Inches.		Depth of Hold	Feet.	Inches.
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SCANTLINGS OF TIMBER.						THICKNESS OF PLANK.							
		IN SHIP.		REQUIRED PER RULE.		OUTSIDE.		Inches.		INSIDE.		Inches.	
		Sided.	Moulded.	Sided.	Moulded.			In Ship.	Required per Rule.			In Ship.	Required
		Middle.	Ends.	Middle.	Ends.								
Timber and Space						Garboard					Limber Strakes		
Floors						Strakes.....							
1st Foothooks						Garboard to							
2d Ditto						Bilge					Bilge Planks		
3d Ditto						Bilge Planks							
Top Timbers						Bilge to Wales					Ceiling in Flat.....		
Deck Beams No. { Average						Wales					Ditto Bilge to Clamp		
Deck Beams, length amid-						Topsides							
ships						Sheerstrakes					Hold Beam Clamps..		
Hold Beams No. { Average						Planksheers					Deck Beam Ditto ...		
Hold Beams, length amid-						Waterways—							
ships						Upper Deck					Ceiling 'twixt Decks		
Keel						Lower Deck					Hold Beam Shelves ..		
Scarphs of Ditto.....						Do. faying sur-							
Keelsons						face against					Deck Beam ditto.....		
Scarphs of Ditto						Timbers ...							
						Upper Deck							

	Copper or Iron Inches in Ship.	Inches required per Rule		Copper or Iron Inches in Ship.	Inches required per Rule
Heel-Knee and Deadwood abaft ...			Butt End Bolts		
Scarphs of Keel No.....			Pintles of the Rudder.....		
Keelson Bolts through Keel at each Floor			Hold Beam Bolts { Waterway in { Knees Shelf or Clamp		
Bolts through Heels of Timbers against Deadwood			Deck Beam Bolts { Waterway in { Knees Shelf or Clamp		
Transoms and throats of Hooks.....			Nails or Bolts in Flat of Deck.....		
Arms of Hooks			Treenails..... Inches.....		
Bolts through Bilge and Limber Strakes, or Thickestuff over Double Floors					

TIMBERING.—The Space between the Floor Timbers and Lower Foothooks is — Inches

The Space between the Top Timbers is ——— Inches.

The Floors consist of _____ The First Footbooks of _____

The Second Foothooks of _____ The Third Foothooks and Top Timbers of _____

The Shifts of the first and second Foothooks are not less than —

[N.B. When less than prescribed by the Rule, state how many.]

The rest of the Shifts of the Frame are —

The Frame is — squared from the first Foothook Heads upwards, and — free from sap, and from thence downwards the Frame is —

The alternate Frames are ——— bolted together to the Gunwale.

[N.B. If not, state how bolted.]

The Butts of the Timbers are — close together; their thickness not less than — of the entire moulding at that place.

The frame is — chocked with — Butt at each end of the chock. The Main piece of Rudder is —

The Main Keelson is ——— and ——— free from all defects. The Main piece of Windlass is ———

The Stem and Stern Post consist of ——— The Transoms, Aprons, Knight Heads, and Hawse Timbers of ——— Deadwood, of ——— and are ——— free from all defects.

The Deck and Hold Beams consist of ——— The Breasthooks of ——— The Knees of ———

PLANKING OUTSIDE.—From the Keel to the Height defined in Note to Table A, or to the First Foothook Heads the Plank is ———

From the above-named height to the Light Water Mark ———

From the Light Water Mark to the Wales ———

The Wales and Blackstrakes are ——— The Topsides ———

The Sheerstrakes and Planksheers ——— The Waterways { Upper Deck ———
Lower Deck ———

The Decks ——— State of ———

The Shifts of the Planking are not less than ——— feet ——— inches. [*N.B.—If less than prescribed by the Rule, state whether general or partial, and if partial, in what part of the Ship.*]

The Planking is wrought ——— between, and without step-butting.

PLANKING INSIDE.—The Limber-strakes and Bilge-strakes are ———

The Ceiling, Lower Hold, and between Decks ——— Shelf Pieces and Clamps ———

FASTENINGS.—To Hold Beams ———

Deck Beams ———

Number of Breasthooks ——— Pointers ——— Crutches ———

Butts End Bolts are of ——— in the Bottom, and ——— Bolt in each Butt End through and clenched.

Bilge and Limber Strakes ——— bolted through and clenched. Treenails of ——— How made ———

Thickstuff over Double Floors ——— bolted through and clenched. General Quality of Workmanship ———

We certify that the above is a correct description of the several particulars therein given

Builder's Signature ———

Surveyor's Signature ———

Her Masts, Yards, &c. are in ——— condition, and sufficient in size and length.

She has SAILS.

CABLES, &c.

ANCHORS,

No.		Fathoms.	Inches.	and their Weights.	No.	Weight.
	Fore Sails,	Chain				
	Fore Top Sails,	Hempen Stream Cable			Bower	
	Fore Topmast Stay Sails,	Hawser			Stream	
	Main Sails,	Towlines.....			Kedge.....	
	Main Top Sails,	Warp				
	and	All of ——— quality.				

Her Standing and Running Rigging ——— sufficient in size and ——— in quality.

She has ——— Long Boat and ——— The present state of the Windlass is ———

Capstan ——— Rudder ——— Pumps ———

General Remarks and Statement and Date of Repairs, if any.

Dates of Surveys { 1st. When the Frame is completed ———
held while building, { 2nd. When the Beams are put in, &c. ———
as per Section 35. { 3rd. When completed, and before the plank be painted or payed ———
Present condition of Caulking of Bottom, ——— Deck, ——— and Waterways ———
If Sheathed, Doubled, Felted, or Coppered ——— When last done ———

I am of opinion this Vessel should be classed ———

The Amount of the Fee£ : : is received by me,

Special£ : :

Certificate£ : :

Committee's Minute ——— 18—

Character assigned ———

	Feet.	Inches.		Horse. No.
Length aloft			Power of Engines	
Extreme Breadth				
Depth from top of Upper Deck Beam to top of Floor				

[illegible]

- Transoms, material ——— or, if none, in what manner compensated for.
- Knight-heads „ }
 Hawse Timbers „ } are they free from defects?
- Bulkheads, No. ——— Thickness of ———
 „ how secured to the sides of the ship ———
 „ size of vertical angle iron and their distance apart ———
- The Frames or Ribs extend in one length from ——— to ——— rivetted through plates with — in. rivets, about ——— apart.
- The reverse angle irons on the floors extend in one length across the middle line from — to —
 „ „ on the frames „ „ „ from ——— to ———
- Keelson, how are the various lengths of plates or angle irons connected?
- Plates, Garboard, double or single rivetted to keel and at upper edge, with rivets — ins. diameter, averaging — in. from centre to centre of rivet.
 „ edges from Garboards to upper part of bilge, worked carvel with a lining piece — in. thick, or clencher, double or single rivetted; rivets — in. diameter, averaging — ins. from centre to centre of rivets.
 „ butts from keel to turn of bilge, worked carvel with a lining piece ——— thick double or single rivetted; rivets — in. diameter, averaging — ins. from centre to centre of rivets. Do the lining pieces lap over and rivet through the lands of the strake below?
 „ edges from bilge to planksheer, worked carvel with a lining piece ——— thick, double or single rivetted; rivets — in. diameter, averaging — ins. from centre to centre of rivets. Do the lining pieces lap over and rivet through the lands of the strake below.
 „ butts from bilge to planksheers, worked carvel with a lining piece ——— thick, or clencher, double or single rivetted; rivets — in. diameter, averaging — ins. from centre to centre of rivets. Breadth of laps in double rivetting ——— Breadth of laps in single rivetting ———.
- Planksheer, how secured to the plating of the sides { *Explain by a sketch,* }
 Waterway „ „ planksheer and to the beams { *if necessary.* }
- Side trussing ——— breadth and thickness of plates ——— how secured? ———
- Deck trussing ——— „ „ „ „ „ „ ———
- Deck Beams, how secured to the side ———
- Hold or Lower Deck „ ———
- Paddle „ „ ———
- No. of breasthooks ——— crutches ——— how are pointers compensated?
- What description of iron is used for the angle iron and plate iron in the vessel?
- *Builder's Signature.*

WORKMANSHIP.—Are the lands or laps of the clench work in all cases in breadth at least five times the diameter of the rivets in double rivetted edges and butts, and at least three times the diameter of the rivets where single rivetting is admitted?

Do the edges of the carvel work and of the butts lay close together throughout their length without requiring any making good of deficiencies?

Do the fillings between the ribs and plates fill in solid with single pieces, or are they in short lengths of various thicknesses?

Do the holes for rivetting plate to frames, lining pieces, or plate to plate, &c., conform well to each other? ——— and are the rivet holes well and sufficiently counter sunk in the outer plate?

Are there any rivets which either break into or have been put through the seams or butts of the plating?

Her Masts, Yards, &c., are in ——— condition, and sufficient in size and length.

She has SAILS.		CABLES, &c.		ANCHORS, and their weight.	
No.			Fathoms. Inches.	No.	Weight.
	Fore Sails,	Chain			Bower,.....
	Fore Top Sails,	Hempen Stream Cable			
	Fore Topmast Stay Sails,	Hawser			Stream,
	Main Sails,	Towlines.....			
	Main Top Sails	Warp			Kedge,.....
	and	All of ——— quality.			

Her Standing and Running Rigging ——— sufficient in size, and ——— in quality

She has ——— Long Boat and ———

The present state of the Windlass is ——— Capstan ——— and Rudder ———
Pumps ———

GENERAL REMARKS.

Statement and date of repairs; extent of corrosion (if any) both internally and externally; and condition of rivets.

Dates of Surveys held while building, as per Section 17.	1st. On the several parts of the frame, when in place, and before the plating was wrought ———
	2nd. On the plating during the progress of rivetting ———
	3rd. When the beams were in and fastened, and before the decks were laid ———
	4th. When the ship was complete, and before the plating was finally coated ———
	5th. After the ship was launched ———

In what manner are the surfaces preserved from oxidation?

I am of opinion this vessel should be classed ———

The amount of the Fee .. £ : : is received by me,

Special £ : :

Certificate (if required) £ : :

Committee's Minute ——— 18—

Character assigned ———

No. 6.

FORM OF REPORT OF ANNUAL SURVEY.

No. — Survey held at — Date — 18 — on the —
 Master — Tonnage — Built at — When built — By whom
 built — Owners — Port belonging to — Destined
 Voyage — If Surveyed Afloat or in Dry Dock —

Last Survey, No. — Port of — Classed —

The present condition of the

Decks	Plank (Bottom) & Counter.	Caulking of Bottom, Deck,
Waterways	Treenails.....	and Waterways
Comings	Breasthooks and Stemson...	Windlass and Capstan
Upper Deck Beams and	Transoms, Pointers, and	Pumps.....
Fastenings	Crutches	Boats
Lower Deck Beams and	Timbers of the Frame	Masts, Yards, &c.
Fastenings	Keelsons.....	Sails.....
Planksheers	Clamps and Shelves.....	Anchors, No. of.....
Sheerstrakes	Ceiling.....	Cables.....
Topsides	Rudder	Hawsers and Warps
Wales	Copper, when put on	Standing & Running Rigging

General Observations and Opinion,

Committee's Minute — 18 —

Character assigned —

Certificate (if required)

No. 7.

FORM OF CERTIFICATE OF CHARACTER.

Lloyd's Register of British and Foreign Shipping.

ESTABLISHED 1834.

No. —



London,

18

No. 2, White Lion Court, Cornhill.

These are to Certify, That the — of —
 — Master, — Tons, bound to —, has been
 Surveyed at — by the Surveyors to this Society, and reported to be, on the

and that she has been **CLASSED** and entered in the **REGISTER BOOK** of this
 Society with the character —

Charge

Witness my hand,

—, Secretary.

— Chairman.

FORM OF CERTIFICATE FOR VESSELS NAVIGATED BY STEAM.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

Certificate for Vessels navigated by Steam.

_____ Day of _____ 18
 _____ certify that the whole of the Boilers and machinery of the
 Steam Vessel _____ belonging to _____, whereof _____
 is Master, _____ Tons, have been carefully inspected and examined by _____
 at _____, and _____ find the same to be at this time in good order
 and safe working condition.

Witness my hand,

Manufacturing Engineer.

The following is a true Account of the Particulars of the machinery of the
 Steam Vessel above named :

ENGINES.	BOILERS.
Number	Whether iron or copper.....
Diameter of Cylinder	Working pressure
Length of Stroke	Can it be increased without going into the Boiler
No. per Minute	What are the means of changing the water while the Boilers are at work
Estimated Power	Maker of the Boilers.....
Diameter of Paddle-wheels	Age of the Boilers
Length of Paddles	When they were last taken out
Breadth of Paddles	Present condition
No. of Paddles	Number of feed pumps
On what motion.....	How attached.....
No. of revolutions per minute ..	What clear space upon the top- side of the boiler from wood- work
Size of the holding-down bolts ..	Do. at the end from ditto.....
Condition of ditto	Do. round the chimney from do.
Maker of the Engines	
Age of the Engines	PUMPS.
When they were last taken out	No. of hand pumps
Present condition of the Engines	Can they be worked by the En- gine
Can injection water be taken from the Bilge in the event of a serious Leak	If any attached to engine, their purpose and size.....
_____	No. of force-pumps
_____	No. of branches and hose of sufficient length to reach to every part of the vessel.....

FUEL.	
Where stowed	
If in contact with boiler	
If not, what space between Coal Boxes and Boiler	
For what quantity is room pro- vided	
If liable to get wetted.....	

Manufacturing Engineer

KEY TO THE REGISTER.

The Stores of Vessels are designated by the Figures 1 and 2 :—

1. Signifying that the Vessel is well and sufficiently found,
2. That she is deficient in either quantity or quality.

Vessels RESTORED to, or CONTINUED on the Character A, will have the number of Years for which they are restored or continued inserted separately under the number originally assigned, in the tenth column; where the term in the latter case has expired, the Letter "C" only will be placed before the figure denoting the number of Years for which Continuation had been allowed.

Vessels marked "S.S." with a date, *in red*, denote that they have been surveyed at that time in accordance with the Rules, Sec. 60.

The mark [*B. S.*] denotes that the vessel is classed subject to *Biennial Survey*. The mark [*Expl. B.S.*] denotes that the vessel is built experimentally, and classed subject to *Biennial Survey*. See Section 31.

British North-American built vessels, opened as required by the Rules, Sec. 63, will be marked in the Register "S.S" with the number of years that may elapse before they are again opened, and the year of survey; thus—"S.S.54—3Yrs—"

When the Rules, Sec. 63, have not been complied with, they will be marked in the Register; thus—"Not Op." and the Character omitted.

When the term "almost Rebuilt" is used, it implies large repairs, but that the Rules for Restoration have not been fully complied with.

The figures in the Tenth Column, to vessels in the *Æ* Class, imply that they were originally classed A, for that number of Years. The cipher 0 in this Column indicates that (from inferior construction) there were no "number of Years first assigned."

Ships built under Special Survey will be shown by a Cross, thus ✕.

In the Second Column.

Bk.....Barque	H .....Hoy	Sp .....Sloop
Bg.....Brig	K .....Ketch	Sr .....Schooner
Bn.....Brigantine	Lr .....Lugger	St .....Schoot
Cr.....Cutter	Pol.....Polacre	Stm.....Steamer
Dr.....Dogger	S.....Ship	Sw .....Snow
G .....Galliot	Sk .....Smack	Yt .....Yacht.

pt.—part—s.—sheathed—d.—doubled—C.—coppered—I. B.—
 Iron Bolts—c.f.—copper fastened—M.—sheathed with Marine Metal
 —YM.—sheathed with Yellow Metal—G. Iron—sheathed with
 Galvanized Iron—Z.—sheathed with Zinc—F.—Felt.
 C.lm.—Coppered to light water or ballast mark.
 C.T.—Copper Bolts substituted for Treenails.

In the Third Column.

"(1 Cls. Ex.)," "(1 Cls.)," or "(2 Cls.)," under the master's name, denote that the said master has received a certificate of qualification for the class indicated.

Sailing Vessels thus distinguished, "A P. 30 H." denote that they are Fitted with Auxiliary Steam Power, equal to 30 Horses.

In the Fourth Column.

H.P.—Horse Power. M.C.—Machinery certified. Where two Tonnages are given, the upper one is the Measurement by the old Act, the under one is that by the new Act, which commenced the 1st January, 1836.

KEY TO THE REGISTER.

In the Fifth Column.

The Timber of which vessels are built is marked by the following Italic Letters :

<i>A</i> Ash	<i>Hm</i> Hemlock	<i>RP</i> Red Pine
<i>BB</i> Black Birch	<i>J</i> Juniper	<i>YP</i> Yellow Pine
<i>Bh</i> Beech	<i>L</i> Locust	<i>S</i> Spruce
<i>C</i> Cedar	<i>Lh</i> Larch	<i>Sb</i> Sabicu
<i>Chs</i> Chesnut	<i>LO</i> Live Oak	<i>Sl</i> Saul
<i>E</i> Elm	<i>M</i> Mahogany	<i>T</i> Teak
<i>F</i> Fir	<i>O</i> Oak	<i>Tam</i> Tamarac
<i>G</i> Gum	<i>P</i> Pine	<i>WH</i> Witch Hazel
<i>Ght</i> Greenheart	<i>PP</i> Pitch Pine	<i>WO</i> White Oak
<i>Hk</i> Hackmatack		

Cl.—Clincher—len.—lengthened—Irp.—large repairs—trp.—thorough repairs—Srprs—Some repairs—Drp.—Damage Repaired—nd.—New Deck—nTSds—New Top-Sides—w.s.—Walesheathed—nw.—New Wales—nb.—New Bottom—nKl.—New Keel—plk.—Plank—nKlsn—New Keelson—alm. rb.—almost rebuilt—pt O.M.—part old Timbers or Plank—Rest.—Restored—Cont.—Continued.—
Blk Hds.—Bulk Heads.

*In the Eighth Column:—U.S. for American Property.**In the Ninth Column (Surveying Ports):*

Abn.. Aberdeen	Drt.. Dartmouth	Lon.. London	St.J...St. John
Abs.. Aberystwith	Dub.. Dublin	Ldy.. Londonderry	Ser... Scarborough
All.. Alloa	Dum.. Dumfries	Lyn.. Lynn	Sil.. Scilly
Arb.. Arbroath	Dun.. Dundee	Mar.. Margate	Shl.. { Shields, N.
Bng.. Bangor	Dgr.. Dungarvon	Mpt.. Maryport	Shl.. { Shields, S.
Bnf.. Banff	Exr.. Exeter	Mil.. Milford	Shm.. Shoreham
Bar.. Barmouth	Fal.. Falmouth	Mch.. Miramichi	Sli.. Sligo
Bpt.. Barnstaple	Foy.. Fowey	Mth.. Monmouth	Sou.. Southampton
Bms.. Beaumaris	Gal.. Galway	Mtr.. Montrose	Stk.. Stockton
Bel.. Belfast	Glr.. Gloucester	N Sc.. Nova Scotia	Str.. Stranraer
Bwk.. Berwick	Gmh. Grangemouth	Nwc.. Newcastle	Sld.. Sunderland
Bid.. Bideford	Goo.. Goole	Nhv.. Newhaven	Sws.. Swansea
Blg.. Belgium	Gns.. Guernsey	Npt.. Newport	Tgn.. Teignmouth
Bly.. Blyth	Hgt.. Harrington	Nry.. Newry	Tps.. Topsham
Bos.. Boston	Hpl.. Hartlepool	Ork...Orkneys	Tqy.. Torquay
Bdg.. Bridgewater	Har.. Harwich	P. E. I. { Prince Ed-	Wtf.. Waterford
Bpt.. Bridport	Hol...Holland	ward Island	Wls.. Wells
Brs.. Bristol	Hul.. Hull	Pad.. Padstow	Wex.. Wexford
Car.. Cardigan	Inv.. Inverness	Pnz.. Penzance	Wey.. Weymouth
Cff.. Cardiff	Ips.. Ipswich	Pet.. Peterhead	Wth.. Whitby
Chp.. Chepstow	I.M.. Isle of Man	Ply.. Plymouth	Whn.. Whitehaven
Chs.. Chester	Jer.. Jersey	Poo.. Poole	Wrk.. Workington
Cly. { Clyde	Lan.. Lancaster	Pts.. Portsmouth	Yar.. Yarmouth
Cly. { Glasgow, &c.	Lth.. Leith	Pmd.. Portmadoc	Ygh.. Youghal
Crk.. Cork	Lim.. Limerick	Ram.. Ramsgate	
Cws.. Cowes	Liv.. Liverpool	Qbc...Quebec	
Dov.. Dover	Lly.. Llanelly	St. I.. St. Ives	

In the Eleventh Column.

The Figures under the Character denote either the Year, or the Month of the current Year, in which the Vessel was last surveyed.

LLOYD'S REGISTER OF BRITISH AND
FOREIGN SHIPPING.

[*Established* 1834.]

NOTICE is hereby given, that in pursuance of a Resolution passed this day by the Committee, the following has been added as a foot-note to the Rules, Sec. 46, viz.:—

“Where thick garboard strakes are used, they must be bolted horizontally through the keel and each other.”

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill, London, (E.C.)*

September 17th, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[*Established 1834.*]

SHIPS CLASSED A,
WHOSE CHARACTERS EXPIRE ON THE 31st DECEMBER, 1857.

NOTICE is hereby given, that in pursuance of a Resolution passed this day by the Committee:—

“All Ships Classed A for a term of years, and which term will expire at the end of the year 1857, will have the character A struck out of the Register Book on the 31st December next, and the word ‘lapsed’ inserted in lieu thereof, except in the case of such Vessels as the Owners shall make it appear, by letter addressed to the Secretary, have not been in any Port of the United Kingdom during the year 1857; such ships will have the Character A 1 retained until the re-printing of the Register-Book in June next. But if the Owners of Ships whose term of years expire at the end of the year, desire that they should lapse to the Æ character, instead of being marked as above, the Committee will, on application, give directions accordingly.”

By order of the Committee,

GEORGE B. SEYFANG.

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

12th November, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

SHIPS CLASSED Æ.

THE General Committee of this Society having determined, by Resolutions passed from year to year, that the Characters of all Ships of the Æ Class (*including those with the Asterisk*) which had not been surveyed between the years 1834 and 1855 inclusive, should, in conformity with the Rules, sections 60 and 61, be expunged, and that such Ships should not have their Characters re-entered in the Society's REGISTER BOOK, until upon further Survey they were found to be entitled thereto;—And it having been also this day decided to extend the Resolutions above mentioned to the Ships of this Class which have not been surveyed since the year 1856:—NOTICE is hereby given, that in pursuance of this decision, the Characters of such Ships of the Class in question as shall not be re-surveyed prior to the 30th of June next (not having been surveyed since 1856) will be omitted in reprinting the Register Book for the Year 1858-59.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

12th November, 1857.

N.B.—In the case of Ships which it shall be made to appear, by letter addressed to the Secretary, have not been in any Port in the United Kingdom since 1856, the above Resolution will not be applied.

CIRCULAR TO SURVEYORS.

LLOYD'S REGISTER OF BRITISH AND
FOREIGN SHIPPING.

SIR,

IT having been represented to the Committee that the Caulking of Ships is frequently very carelessly and inefficiently performed; I am directed to call your particular attention to this most important subject, and to express the Committee's desire that you will, whenever practicable, satisfy yourself, *by personal examination*, that the Caulking has been properly and efficiently done; *and that you will state in the Report of Survey that you are satisfied therewith.*

I am, SIR,

Your obedient servant,

(Signed) GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E. C.)

24th December, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[*Established 1834.*]

IRON SHIPS.

NOTICE is hereby given, that in pursuance of a Resolution passed by the Committee of this Society on the 24th instant, the following has been added as a footnote to the Table G. for Iron Ships:—

“ Ships built under Survey, in which the thickness of the plating is equal to the requirements of the Rules, but which, from partial deficiencies, may not appear to be in all respects entitled to the full terms of years contemplated by the above Table, will have one year, at the discretion of the Committee, abated from the period to which they would otherwise be entitled.”

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill, London, (E.C.)*

31st December, 1857.

CIRCULAR TO SURVEYORS.

LLOYD'S REGISTER OF BRITISH AND
FOREIGN SHIPPING.

SIR,

THE Committee having reason to believe that Mahogany of a soft, spongy, light nature, unfit for the purpose, has been used in Ship-building, by which disappointment and expense have been occasioned to Owners, I am directed to call your particular attention to this important subject; and in reminding you that the Rules recognise the use only of Mahogany of "good quality" and of "hard texture," to express the Committee's desire that you will direct the attention of the Ship-builders in your district to the above requirements, and impress upon them the fact that Mahogany, the quality of which is not in strict accordance with the description required by the Rules, cannot be used in Ships intended for Classification in the Register Book.

I am, SIR,

Your obedient servant,

(Signed) GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London (E.C.)

14th January, 1858.

P.S.—It has been suggested that the weight of Mahogany offers one of the easiest and most reliable tests of its durability :—

The weight of dry Mahogany ranges from 35lbs. to 53lbs. and upwards per cubic foot, and it is considered that 42lbs. per cubic foot should be the minimum weight of dry Mahogany admitted to be used in Ship-building under the Rules of the Society, as set forth in Table A.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

NOTICE is hereby given, that in pursuance of a Resolution passed this day by the Committee of Lloyd's Register of British and Foreign Shipping, the Regulation relating to Ships built on peculiar principles, which was passed on the 9th July, has been extended as follows, viz. :—

“ All Ships hereafter to be classed, which are not built in accordance with the principles of the Society's Rules, will be marked in the Register Book thus, ‘*Expl. (B.S.)*,’ denoting that they are built experimentally, and are classed subject to being surveyed biennially.”

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill, London, (E.C.)*

14th January, 1858.

CIRCULAR TO SURVEYORS.

LLOYD'S REGISTER OF BRITISH AND
FOREIGN SHIPPING.

SIR,

THE subject of "Sister Keelsons" having been brought under the consideration of the Committee, I am directed to acquaint you that in all Ships where either Sister Keelsons or Bilge Keelsons are introduced, they must be considered as "material fastenings," and be through bolted accordingly, at alternate timbers, to the satisfaction of the Surveyors.

I am, SIR,

Your obedient servant,

(Signed) GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

18th February, 1858.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

RULES AND REGULATIONS.

NOTICE is hereby given, that in pursuance of Resolutions passed by the Committee, alterations and amendments have been made in the Rules and Regulations of Lloyd's Register of British and Foreign Shipping as follows :—

Sec. 39.—The intermediate dimensions for the scantling of timbers between the floor heads and the gunwale to be regulated in proportion to the distance from the two points. Should the timber and space be increased, the siding of the timbers to be increased in proportion. Whenever ships are built with double floors, thick strakes (see Table B) must be worked inside, to extend from the lower part of the short floor-head chocks to the upper part of the long floor-head chocks, and be well bolted through and clenched, *with one bolt at the head of each long and short arm of floors, and at the heel of each first and second foothook which come upon them, from the foremast extending a distance aft equal to three-fifths of the length of the ship; in such cases the timber strakes need not be through bolted.*

All ships the length of which (measured from the fore part of the stem to the after part of the stern post on the range of upper deck) shall exceed five times their extreme breadth, shall have diagonal iron plates closely inserted either outside or inside the frame.* If placed outside, the said plates to extend from the upper side of upper tier of beams to the lower part of chocks at first futtock heads amidship, and to the same perpendicular height forward and aft, measured from the lower part of the keel; and if placed inside, the plates are to extend from the upper side of upper tier of beams to the lower part of chocks at *floor-heads*. Whether placed outside or inside, the sizes of the plates not to be less than as follows, viz. :—

In ships of 100 tons and under 200 tons	3½ by 7 ¹ / ₈ inch
" 200 " 400	4 by 1 ¹ / ₂ " "
" 400 " 700	4 by " "
" 700 " 1000	4½ by " "
" 1000 " 1500	5 by " "
" 1500 and above	5½ by " "

and to be fastened with bolts, one at each alternate timber if outside, and one at each timber if inside, not less in diameter than the sizes given for "through butt bolts" in Table D.

* Parties objecting to fit the iron plates on frames as prescribed above are at liberty to submit, for the Committee's consideration and approval, such compensation as will, in their opinion, render the introduction of the iron plates unnecessary.

The number of plates to be in proportion of not less than one pair to every twelve feet of the ship's entire length taken as above; but not to be more than eight feet asunder measured on a square; the said plates are to be placed diagonally, at an angle of not less than 45 degrees, their lower ends pointing to the after end of the keel in the after body, and to the fore end of the keel in the fore body, four pairs crossing each other amidship.

All such ships to have shelves and waterways to each tier of beams, each equal in contents to the transverse sectional area of the beams of their respective decks at their ends; each of the said shelves and waterways to be bolted through the outside planking at every timber, with bolts of the sizes given in Table D; likewise the shifts of inside and outside planking not to be less than six feet, unless there be a strake wrought between them, and then a distance of five feet will be allowed.

SEC. 45.—The following has been added to this Rule, viz.:—"The breadth of the wales in every case is to be regulated as under, viz.:—

When the extreme length of the ship, measured from the fore part of the stem to the after part of the sternpost, on the range of upper deck, is six times her depth of hold (and under), the wales are to be in breadth 3 in. to every foot of the depth of hold.

When the extreme length of the ship is eight times her depth of hold, the wales are to be in breadth $3\frac{1}{2}$ in. to every foot of the depth of hold.

When the extreme length of the ship is ten times her depth of hold (and above) the wales are to be in breadth 4 in. to every foot of the depth of hold.

And other intermediate dimensions in these proportions.

SEC. 56.—The following has been added as a foot-note to this rule, viz.:—

"In the cases of ships fastened with copper or yellow metal, to the exclusion of iron (in conformity with the Rule Section 46), where there is no poop or forecastle, if the whole of the planksheer and spirketting of upper deck and outside planking equal to one strake all fore and aft be removed in way of fastening bolts to each tier of beams, below the upper deck beams; and where there is a poop and forecastle, then if the whole of the planksheer and spirketting of poop, forecastle, and waist, and a strake of outside planking (in way of fastening bolts to upper deck beams), the entire lengths of the poop and forecastle, and outside planking equal to one strake all fore and aft be removed in way of fastening bolts to each tier of beams below the upper deck beams; and in all cases a strake of deck next the waterway of each deck, on both sides, be removed, also the throat bolts of all knees, together with the other requisitions relating to the bottom, ceiling, &c., the further removal of fastenings, bolts, and planks, may, under the sanction of the Committee, be dispensed with, provided their condition be carefully ascertained and favourably reported upon by the Surveyors.

The above relaxations, so far as they relate to the removal of plank and fastenings in the range of the lower deck, will be extended to all ships in which all the lower deck fastenings are of copper or yellow metal.

SEC. 62.—So far as it relates to ships the length of which exceeds five times their breadth, has been amended as follows, viz.:—

Ships built in the British North American Colonies, and all ships the frames of which are composed of fir, of 600 tons and upwards, and all ships (*wherever built*) the length of which (measured from the forepart of the stem to the after part of the stern post on the range of upper deck) shall exceed five times their extreme breadth, shall have diagonal iron plates closely inserted either outside or inside the frame. If placed outside, the said plates to extend from the upper side of upper tier of beams to the lower part of chocks at first foothook heads amidship, and to the same perpendicular height forward and aft, measured from the lower part of the keel; and if placed inside,

the plates are to extend from the upper side of upper tier of beams to the lower part of chocks at *floor heads*. Whether placed outside or inside, the sizes of the plates not to be less than as follows, viz. :—

In ships of 100 tons and under 200 tons	3½ by $\frac{7}{16}$ inch.
" 200 " 400	4 by $\frac{1}{2}$ "
" 400 " 700	4 by $\frac{5}{8}$ "
" 700 " 1,000	4½ by $\frac{3}{4}$ "
" 1,000 " 1,500	5 by $\frac{3}{4}$ "
" 1,500 and above	5½ by $\frac{7}{8}$ "

and to be fastened with bolts, one at each alternate timber if outside, and one at each timber if inside, not less in diameter than the sizes given for "through butt bolts" in Table D.

The number of plates to be in proportion of not less than one pair to every twelve feet of the ship's entire length taken as above, but not to be more than eight feet asunder measured on a square; the said plates are to be placed diagonally, at an angle of not less than forty-five degrees, their lower ends pointing to the after end of the keel in the after body, and to the fore end of the keel in the fore body, four pairs crossing each other amidship.

All such ships to have shelves and waterways to each tier of beams, each equal in contents to the transverse sectional area of the beams of their respective decks at their ends; each of the said shelves and waterways to be bolted through the outside planking at every timber, with bolts of the sizes given in Table D; likewise the shifts of inside and outside planking not to be less than six feet, unless there be a strake wrought between them, and then a distance of five feet will be allowed.

Hemlock timber, of good quality, will be allowed to be used for the following parts in ships of the Four Years' grade, viz. :—

Floors.

First, second, and third foothooks and top-timbers.

Beams, hooks, and knees.

Planking, outside and inside.

and will be entered in the Table A accordingly.

The Committee have also approved of a drawing showing the direction of the iron plates on frames prescribed by the Rules Sections 39 and 62, and the iron knees and riders prescribed by the Rules Section 62. Copies of the drawing may be had on application at this Office, or to the Surveyors.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

18th March, 1858.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

RULES AND REGULATIONS.

NOTICE is hereby given, that in pursuance of Resolutions passed by the Committee on the 20th instant, alterations and amendments have been made in the Rules and Regulations of Lloyd's Register of British and Foreign Shipping as follows:—

SECTION 37,—Has been altered so as to require “each set of timbers to be frame-bolted together throughout their entire lengths” in ships of the Twelve Years' grade, instead of each *alternate* set as heretofore.

SECTION 50,—Has also been amended so as to require “each *alternate* set of timbers to be frame-bolted together throughout their entire lengths” in ships of the Ten Years' grade.

SECTION 46.—The sentence commencing at the end of the first line in page 15, has been altered as follows:—“In all cases in which planks above *eleven* inches in width shall be used, they must be double fastened; and those above *eight* inches in width must be treenailed double and single, except bolts intervene.”

SECTIONS 39 and 62.—The Regulations recently passed requiring iron plates to be fitted either inside or outside on the frames of ships, the length of which (measured from the fore part of the stem to the after part of the stern post on the range of upper deck) exceed five times their extreme breadth, have been extended as follows, viz. :—

“In ships the length of which shall exceed *six* times their extreme breadth, the number of plates must be not less than one pair to every *ten* feet of the ship's entire length taken as above, but not to be more than six feet asunder measured on a square, and to be placed diagonally as above described. And in addition thereto, such ships must be fitted with a rider keelson, or a pair of sister keelsons, at the option of the owner,—the transverse sectional area of such rider keelson or sister keelsons each to be equal to two-thirds of that required in Table B for main keelsons.—If a rider keelson be adopted, it must be fastened with through bolts of the size required in Table D for keelson bolts, and in number not less than one in every *alternate* floor.—If sister keelsons be fitted, they must be fastened with through bolts, in number not less than one in every *alternate* timber, and of the size required in Table D for “scarphs of keels,” &c.

SECTIONS 79, 80, and 81.—The relaxations in favour of steam ships heretofore allowed by these Rules, as regards materials and scantlings, will be discontinued; and steam ships hereafter built will be subject to the same requirements in these respects as sailing vessels.

SECTION 77,—Requiring sea-going steam ships to be surveyed *twice a year*, has been abolished; and in this respect steam ships will be placed on the same footing as sailing vessels.

TABLE F. has been amended, so as to require the iron knees and riders to upper deck and hold beams to be three inches in breadth in ships of 300 tons and under, instead of $2\frac{1}{2}$ inches, as heretofore.

By Order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill, London, (E.C.)*
3rd June, 1858.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

NOTICE is hereby given, that in pursuance of a Resolution passed this day, the following has been added as a foot-note to the Scale (No. 22) recommended by the Committee, for "Weights of Ordinary Anchors, Sizes and Lengths of Chain Cables, and Sizes and Lengths of Hawser and Warps," &c.—viz.,

Chains tested at a *Public Machine* up to the Admiralty test, and marked as so tested, may be $\frac{1}{16}$ of an inch less in those of 1 inch to $1\frac{3}{4}$ inches diameter, and $\frac{1}{8}$ inch less in those above $1\frac{3}{4}$ inches diameter.

The above will also be added to the Rules, Section 73.

By order of the Committee,

GEORGE B. SEYFANG.

Secretary.

No. 2, *White Lion Court, Cornhill, London, E.C.,*

23rd September, 1858.

THE HISTORY OF THE UNITED STATES

The history of the United States is a story of growth and development. It begins with the first settlers who came to the continent, and it ends with the present day. The story is one of struggle and triumph, of hope and despair. It is a story that has shaped the world, and it is a story that will continue to shape the world for many years to come.

The first settlers came to the continent in search of a new home. They were driven from their homes in Europe by war and famine. They came to the continent and they found a new world. They found a world of opportunity and of freedom. They found a world that was theirs to shape and to build.

The first settlers were men of courage and of vision. They were men who believed in the future of the United States. They were men who believed that the United States was a land of opportunity and of freedom. They were men who believed that the United States was a land where every man could make his own way.

The first settlers were men of faith. They were men who believed in the power of God. They were men who believed that God was with them. They were men who believed that God was their protector and their guide. They were men who believed that God was their friend.

The first settlers were men of love. They were men who loved their fellow men. They were men who loved their country. They were men who loved their God. They were men who loved life. They were men who loved the United States. They were men who loved the world.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

SHIPS CLASSED A IN RED, AND Æ, INCLUDING THOSE
WITH THE ASTERISK.

The General Committee of this Society having determined by Resolutions passed from year to year, that the Characters of all Ships of the Æ class (*including those with the Asterisk*) which had not been surveyed between the years 1834 and 1856 inclusive, should, in conformity with the Rules, sections 60 and 61, be omitted, and that such Ships should not be re-classed in the Society's REGISTER BOOK, until again surveyed ;—And it having been this day decided to extend the Resolutions above-mentioned to such Ships of this Class, and to those classed A in red, as have not been surveyed since the year 1857:—NOTICE is hereby given, that in pursuance of this decision, the Characters of such Ships of the Classes in question as shall not be re-surveyed prior to the 30th of June next (not having been surveyed since 1857), will be omitted in reprinting the Register Book for the Year 1859-60.

By order of the Committee,

GEORGE B. SEYFANG.

Secretary.

No. 2, White Lion Court, Cornhill, London, E.C.

28th October, 1858.

N.B.—In the case of Ships which it shall be made to appear, by letter addressed to the Secretary, have not been in any port in the United Kingdom since 1857, the above Resolution will not be applied.

SHIPS CLASSED A IN REG. AND B. INCLUDING THOSE
WITH THE APOSTRICH

The General Committee of this Society having determined by Resolution passed from year to year, that the Characters of all Ships of the A Class (including those with the Apostroph) which had not been surveyed between the years 1847 and 1850 inclusive should be included with the B Class (not 51, as omitted and that such Ships should not be included in the Society's REGISTER BOOK, until again surveyed;—And it having been this day decided to extend the Resolution above-mentioned to such Ships of the Class A and B (not 51) as have not been surveyed since the year 1847—1850, a barely given, that in pursuance of this Resolution the Characters of such Ships of the Class in question as shall not be surveyed prior to the 30th of June next (not having been surveyed since 1847) will be omitted in registering the Register Book for the Year 1851-52.

By Order of the Committee,

GEORGE A. BRYAN.

Secretary.

25, Abchurch Lane, London E.C.

1851-52

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

SHIPS CLASSED A
WHOSE CHARACTERS EXPIRE on the 31st DECEMBER, 1858.

NOTICE is hereby given, that in pursuance of a Resolution passed this day by the Committee :—

“Ships Classed A for a term of years, and which term will expire at the end of the year 1858, will have the character A struck out of the Register Book on the 31st December next, and the word ‘*lapsed*’* inserted in lieu thereof. Ships, however, which have been surveyed during the year 1858, and Ships, the Owners of which shall make it appear, *by letter addressed to the Secretary*, have not been in any Port in the United Kingdom during the year 1858, will have the Character A retained until the reprinting of the Register Book in June next.”

* If the Owners desire that they should lapse to the Æ character, instead of being marked ‘*lapsed*,’ the Committee will, on application, give directions accordingly.

By order of the Committee

GEORGE B. SEYFANG,

Secretary.

No. 2, White Lion Court, Cornhill, London, E.C.,

28th October, 1858.

